Sixteenth Year of Publication

Industrial FINISHING

Reg. U. S. Pat. Office

Published Monthly in the Interest of Modern Production Finishing

Vol. XVI, No. 10 **AUGUST, 1940** **$2.00 a Year**

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Published by
Practical Publications, Inc., 222 E. Ohio St., Indianapolis, Ind.

Eastern Representative: C. A. Larson, 254 West 31st St., New York City; Phone Penna. 6-9049

Letters from Readers

OF INDUSTRIAL FINISHING

These letters (and many others) were answered recently by the editorial department, but are published here to reveal certain interesting trends of desire and activity in the industry, and to encourage additional inquiries, comments and suggestions. Further information about any of them can be obtained by writing this office.—Editor.

Masonite Finishing

Will you kindly let us know the dates of your issues in which you had two articles on Masonite preparation and finishing?—B. J. Co.

The articles you ask about were published in Sept. and Nov. 1938 issues.—ED.

Recovery of Solvents

In June, 1940, issue (page 42) we read an article on the subject of "Recovery of Solvents," by Raymond S. Anderson, who is the vice president of the company. There is no address given either in this article or any place in the magazine. We do not find this company listed in any of the trade books. Will you please give us their address? It would also be appreciated if you would request them to write us, giving some information as to what they are in a position to accomplish. —R. B. Co. (Liquid Meters).

The company's address is Lister Ave. and Brown St., Newark, N. J. —ED.

Onyx Effects Sprayed

In the February issue (page 50) you made some mention of a new type of airbrush with which an onyx or marbled effect can be obtained. We are very much interested in securing some information on this equipment and will, therefore, appreciate it if you will give us the name of the manufacturer.—B. C. Co. (Paint & Color Works).

Information given.—ED.

Electric Buffer

Would you be good enough to let us have the name of the concern making the portable electric buffer, which was illustrated on page 18 of November, 1939, issue?—T. H. Co. (Furniture).

Information supplied.—ED.

Conveyors; Multiple Stripers

We would appreciate it very much if you would send us: 1) a list of concerns that manufacture conveyors; and 2) a list of concerns that manufacture a mechanical striper that is used to put stripes on automobile bodies.—M. Glass Works (Christmas-Tree Glass Ornaments).

Information supplied.—ED.

Book of Synthetics

We refer to the May, 1940, issue of INDUSTRIAL FINISHING, pages 10 and 79. Being aware neither of its cost nor of the publisher's full address, we should be very pleased if you would be good enough to ask the Reinhold Publishing Corp., New York, to send us against "Cash on

THE HELPING HAND

DeVilbiss Serves American Industry

● DeVilbiss has made possible new standards of finishing for American industry. To the casual observer this alone seems important enough, in an age when color and decoration affect the sale of so many products, from saxophones to gangplows, from toys to motor cars, from hairpins to refrigerators.

But the total contribution made by DeVilbiss is much more far-reaching.

DeVilbiss Spray Systems have speeded up finishing processes to the pace of modern manufacturing operations, and eliminated what was once considered the "bottle-neck" of production. They have transformed the finishing department into a model of orderliness, sanitation and safety. They have increased the productivity and earning power of labor, and bettered working conditions. They have brought about economies in time and materials to be passed on in lower selling prices, for the development of wider markets.

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IT'S TIME NOW

to think of your new items for

Thanksgiving

AND

Christmas

Dress them up with the proper shades of

RAYON FLOCKS

IN HOLIDAY COLORS

Impart that velvety soft, colorful finish which attracts buyer attention and increases your sales and profits.

Write for sample color card and information

CLAREMONT WASTE MFG. CO.

Claremont, N. H.

The country's leading makers

Delivery," one copy of Dr. Wm. Krumbhaar's newest book entitled "The Chemistry of Synthetic Surface Coatings." Thanking you in anticipation for your kind assistance . . . . —L. K. H., Semarang, Java, D. E. I.

Want Paint Paddles

On page 6 of July issue, "A. B. Co." say they are manufacturers of paint paddles. We will be very glad to have them get in touch with us, for paddles for aluminum paint.—H. W. Co.

Small Spray Booths

Please advise us the names of one or two manufacturers of simple small spray equipment, that is, small spray cabinets. We are interested in something with an opening of not more than 3x4-ft. and 2-ft. deep.—M. M. Co. (Makers of Novelties).

Blond Acid Stain

On page 46 of your July issue there is reference to a blond acid stain. Will you kindly give me particulars, including the name of the manufacturer?

We are asking Mr. R. E. Casey, author of the article, about this. He is located in North Carolina.—ED.

"Fish Scale" Paint for Airplanes

One of our important aircraft accounts is eager to learn the name of the firm or firms manufacturing a non-conductive silver or aluminum "fish scale" aircraft finish. The product is desired to paint the inside of Plastecele nose pieces which house the plane's loop antennae.

If you are in position to supply us with the name of the manufacturer of such a material in order that we may transmit this information to our client, we shall be extremely grateful.—X. Co.

It would seem to us that any metallic finish, such as silver or aluminum, would be a good conductor of electricity—which is what is not wanted.

In the "fish scale" line of paint, all we can think of is the pearl essence material used in lacquers and synthetics. In a letter we are sending you a list of concerns who sell various pearl essence finishes. Some

Doing any bleaching? **TRY**

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Single Application! Powerful!
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No residue! GUARANTEED!

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"Unquestionable Quality" Industrial Finishes

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of these concerns may have given this subject intensive study and may have developed or know of something like or similar to what you are inquiring about.

Can some reader give us some information or suggestions along this line?—ED.

Coating Unaffected by Solutions

Will you please tell us what kind of protective coating to use to cover copper troughs, which carry warm ammonical solutions of reducing agents, such as rochelle salts? The troughs have the solutions in them for eight or ten hours a day.—D. K. Co. (The House of Mirrors).

In a letter we have suggested two materials for this work.—ED.

Specifies Finishes

Recently I saw a copy of your publication, INDUSTRIAL FINISHING. As I have much to do with manufacturers in the way of specifying the nature of finish on some of their products, I will be pleased to receive subsequent copies of this interesting magazine.

My two major lines are the products of [two stove companies].—L. J.

Knows Silk Screens

In your July, 1940, issue of INDUSTRIAL FINISHING, I notice an inquiry, on page 77, concerning information on photographic silk screens. As I have been at the head of the screen department in one of the largest glass companies in the country, for the past six years, I can assure you of the very finest of work. I would like very much to contact the company that is interested in the screen process.—W. F. C.

Flocks; Deadener

In July, 1940 issue, page 58, we notice that a reader asks for information about the use of flock finish, and particularly wants to know about its usefulness as a sound deadener.

We have tried the first tests with

Flo-Bak CLEAR BAKING SYNTHETIC

A HIGH SPEED BAKING LINE OF FINISHES

Clear Flo-Bak Y536

A clear synthetic finish, absolutely water white. Specifically formulated for adhesion to copper and brass. Ideally suited for pen and pencil clips and other items requiring a clear protective finish.

1. **Tough finish.**
2. **High lustre.**
3. **Easy flowing.**
4. **Excellent retention of gloss.**
5. **Highly resistant to acid, alkali and alcohol.**

Baking schedules are adjustable to most finishing procedures:
300° F. for 10 minutes
275° F. for 20 minutes

Further information and samples will be gladly furnished on request.

LACQUERS
THINNERS
ENAMELS
METALIZED FINISHES
SYNTHETICS

UNITED LACQUER MFG. CORP.

General Offices and Factory: Linden, New Jersey

all sorts of thicknesses of flock and kinds and combinations, but we were unable to note any deadening effects. These tests were proposed by the writer in connection with metal coverings used in motor bus construction, and later in connection with refrigerator work with a large producer.

There is a method of spraying a deadener on metals of thin section and preventing troublesome sweating due to condensation—using the usual flock gun but a different type of sealer coating, and not flock of the usual type. If you will refer the reader to us and have him state just where and how he wishes to use the deadener, perhaps we can be of help. We have successfully sprayed many kinds of materials other than flock for various purposes.—Technical Specialties Co.

Dip Prime Coat

We do considerable priming of window sash and frames. This has been done with a spray gun or by hand. We want to try dipping these items. Can you give us information on the proper primer to use for this purpose? At present we are priming with an outside white paint and would want to continue to get the same effect; in other words, a white color prime coat.—City Sash & Door Co.

You might be able to use the same primer you have been using, but you will have to hang the sash and frames in such a manner that the excess material will drain off completely and not be trapped in inside corners. Also, the nature and viscosity of the material will have to be such that a sufficient quantity will adhere to the sash surfaces and allow the surplus material to flow off quickly and effectively without leaving "fat edges" or "drips." Any one of several firms advertising in INDUSTRIAL FINISHING magazine can supply you with a satisfactory dipping primer.—ED.

Marble Grit; Dust

In reply to several inquiries for marble grit or dust, as mentioned incidentally in my article about "Custom Metal Finishing," published in May, 1940 issue, I am pleased to state that one source of supply for same is Whittaker, Clark & Daniels, Inc., 260 N. Broadway, New York, N. Y.—W. K. PERDUE.

Note, Chicago Refinishers!

The top of my dining room table, at home, is badly marred in one spot, which makes it necessary to have this top completely refinished. Would greatly appreciate it if you could give me the name of one or two companies in Chicago who do this type of refinishing work.—E. E. Co. (Miniature Red Cedar Chests).

Infra-Red Drying

I am very much interested in gathering information on infra-red drying. I was told that in several back copies of INDUSTRIAL FINISHING there were some very excellent articles on this subject. If possible, I would like to obtain copies of these articles.—U. Y. Co. (Household Appliances).

Tear sheets of articles published on this subject have been sent, but only a very few remain. There has been a heavy demand for these and all other back numbers of INDUSTRIAL FINISHING.—ED.

Crackle Finish

The Parr Paint & Color Co. of Cleveland suggested that I write to you to secure the names of manufacturers who make crackle finish, lacquer or enamel. I shall need some of this material in ivory or white. Any information you can give me will be much appreciated, since none of the large Cleveland manufacturers make this product at the present time.—H. A.

We also note that a number of concerns no longer include crackle lacquer in their lines, but we have been advised recently of a few companies who still make and sell crackle lacquer.—ED.

Facts About Thinners Interesting

You have a very interesting article in the June issue, on "Facts About Thinners" (pages 16-20).

At this time we are using a considerable quantity of thinner. The writer was interested in your test tables on page 18 of this issue, but would like to have a little more information if possible. I might say that we have no laboratory in our plant to test thinners from a pro-

(Continued on page 71)

FORM - A - ROC

We offer to all industries equipped for baking finishes this highly perfected, heat-converting, synthetic enamel.

FORM - A - ROC

We have combined to an optimum degree the necessary qualities of tremendous hardness, great adhesion, smooth lustrous gloss, and freedom from haze, discoloration and wrinkling.

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Baking schedule is of great flexibility, permitting from 5 - 50 minutes at 250 - 375° F.

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No matter which of the present worthy finishes of this type you may be using or planning to use we sincerely recommend that you investigate

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5208 Harvard Avenue

CLEVELAND, O.

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One of the testing d
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ratories at Indianap
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er in the foregrou

THE LILLY COMPANY

HIGH POINT, N. C.

ERIGHT FINISH

YOU'LL FINISH RIGHT"

Our slogan for more than 10 years
Our creed for more than 70 years

No matter how good a finishing material is (regardless of its merits and qualities) it is not the "right" finish unless used for the specific purpose or product for which it is designed or adapted. That's why we maintain and operate two* complete laboratories and research units, advantageously located at Indianapolis and High Point . . . both well equipped with modern facilities for research, formulation and testing of various finishes. Through the cooperation and coordination of our experienced technicians and experts at these two points we are able to formulate and produce the "right" finish for any specific purpose or product. Remember our slogan and let us make the "right" finish for you.

**A third Lilly plant, with a fully equipped laboratory and research unit will be ready for operation soon; watch for announcement of its location.*

LILLY VARNISH COMPANY
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Great Britain and Europe: Apply Jenson & Nicholson Laboratories, Stratford, London, England

Portrait of the Author

Styles, Finishes a

SHOWN AT THE NATIONAL HOME FU

BY ROSALIE FLANK

Style Authority and Director of Advertising and Public Relations for the American Furniture Mart, 666 Lake Shore Drive, Chicago, Ill.

FEELING their way cautiously on new trends and refraining from dramatics of any kind, style observers found manufacturers at the summer market at the American Furniture Mart, placing emphasis on sound design, improved construction and beautiful finishing rather than furniture fads inspired by motion pictures, songs or decorators' whims.

Characterized by a movement which, for want of a better name, was termed "transitional," the tendency toward modernized and Americanized styling of period pieces reached its highest peak to date. While following basic period lines, many of the new pieces reflected the liberties taken by American designers to create furnishings adaptable to American living conditions. At the other extreme of the modern scale were the frankly modern pieces. These were simplified to the extreme, hardware and all embellishments having been eliminated and only the well-scaled design and the finish adding disinction and character.

With nothing outstandingly new in the way of design upon which to put one's finger, interest centered upon new finishes, construction and new materials and new uses for old materials.

The Term "Bleached" Avoided

Carefully avoiding the use of the term "bleached" in describing the new finishes, manufacturers talked of toasted, smoked, harvest and bronze mahogany; zephyr, heather and fawn-tone walnut; waxed wheat, peachtone and greyed birch; limed, almond and Coronation brown oak; and sandwich, honey or autumn-browned maple. Reluctant to refer to a word which might bring to mind the soap-white color of the early

and Colors in Furniture

FURNISHINGS EXHIBIT IN CHICAGO, JULY 1 TO 13

days, and the bleeding, streaking and drying caused by early bleaching, manufacturers insisted that technically the new colors were not the result of bleaching but rather *the toning up or toning down of the natural wood colors.*

Toasted Mahogany; Fawn Walnut; Limed Oak; Sandwich Maple

Analyzing the new mahogany colors, manufacturers either employed a filler, lacquer and wax over the natural color, or used a brown stain, wiping off all excess as soon as a toast color was attained. Many of the new pieces appeared to be the color of wet mahogany and the medium-tone finish added a new, contemporary touch to the period as well as frankly modern ensembles.

The fawn or heather finish on walnut produced a pinkish grey tone which added sparkle and youthful appeal to this old cabinet wood, heretofore featured in a golden brown color.

The peach and greyed tone used on birch was acquired by a stain

Heather-tone walnut, a new rubbed finish used to fashion these open book shelves.

This "buffanette," especially designed for a small apartment, is finished in toasted mahogany. The hardware is made of satin-finished brass. The upholstered chair also has toasted mahogany legs.

of a delicate pastel used on the wood, and the clear lacquer showed the grain of the wood delicately colored in the light pastel.

Oak rose to new heights in popularity in its new limed finish—white filler being rubbed into the pores of bleached oak; then a transparent sealer preserving the cool, frosted appearance. Almond oak was slightly darker, and Coronation was a rich warm brown color, lighter and richer than the old style Jacobean.

The sandwich finish on maple resembled an oiled finish over the natural colored wood. Honey tones were half way between the light oiled color and the rich autumn brown, and the dark tones were a deep brown color, rubbed and waxed to a rich glow.

On period pieces a rich patina, resembling the hand rubbed finish, was magnificently produced; only the most seasoned observer could detect difference between hand work and the machine methods now employed.

Pecan and cherry wood were shown in their natural beauty, appearing many times as a compromise between maple and mahogany, or maple and walnut.

Metal Grilles Used

The outstanding trims used were metal grilles and galleries. These were antiqued bronze and gave a Regency feeling to 18th Century pieces upon which they were employed. Hardware manufacturers deprived of an opportunity to produce modern hardware (the newer pieces completely eliminating hardware and substituting in its stead grooved finger niches) devoted their attention to hardware for period pieces; as a result the bronze, copper and antique bronze pulls were the most beautiful yet produced.

Plastics Appear in Many Lines

Of especial interest was the increased use of plastics. One manufacturer used brown-tinted clear catalin pulls on modern wheat-colored case pieces. Another manufacturer employed Formica veneer, in a sky-blue color, to the surface of a cedar chest. Kitchen table tops of black and colored Formica appeared in many lines. Plastic medallions with nursery-rhyme characters stamped into the material were used as trims on juvenile furniture. Lucite tubes were used with Herculite glass on stunning new cocktail tables.

All hardware and embellishments are eliminated on this server which is part of a complete modern dining room ensemble made of fawn-tone walnut. The piece relies upon its simple lines and beautiful finish for distinction.

A "Duro-plastic" finish was used on a new oil heater, and the washing machine manufacturers employed plastic agitators in new machines. At no other market has such a variety of plastics been used. The new trend is being carefully watched by market observers.

Lime oak takes on new character in the fashioning of this graceful, modern bedroom suite. Light in scale as well as in color, all hardware has been eliminated. Grooved finger niches serve as the drawer pulls, and lend a decorative accent.

Black lacquered pieces were noticed scattered throughout the market, apparently given impetus by the recent Regency flurry. Maple lines showed wall shelves or occasional chairs of black lacquer trimmed with gold. Casegoods lines used black lacquered mirror frames with natural wood cases. Here and there a bench, a chair frame or, in some instances, an entire dinette suite appeared in black lacquer, adding a dramatic accent to the new market samples.

Blood-red Mahogany

Of unsual interest was a new "piano" finish used, by a couple of manufacturers, on new modern suites. This finish resembled the high-gloss finish used on the old mahogany pianos and appeared in a deep blood-red color on mahogany—three coats of lacquer adding a patent-leather type of finish. A high gloss finish was also used on a pastel-colored juvenile ensemble with stunning effect. While dealers viewed the new finish with caution, stylists and

women style authorities were fascinated by its beauty.

Most of the juvenile lines stressed new finishes of one type or another, manufacturers emphasizing the purity of the new finishes and the ease with which the lacquered and painted pieces could withstand constant washing. Since small babies seem inclined toward putting their mouths against the cribs, purity of the finish has become an important talking point.

Third dimensional decalcomanias were the favorite trim on juvenile ensembles, these decals being made by photographing stuffed animals actually dressed in the clothes and colors reproduced.

Juvenile, dinette and some bedroom lines used pastel stains on birch or watered lacquer effects, a transparent pastel-colored lacquer giving a watery effect of the clear wood.

A turquoise green-tinted transparent lacquer finish is used over birch to give an irradescent effect on this unusual suite. These right and left twin chests offer a practical new decorative treatment.

Outstanding from a construction standpoint was a modern bedroom ensemble which, though made entirely by machine methods, eliminated almost completely the use of nails or screws. Interlocking corner joints and dovetailed front and side pieces were clamped together in a hot press, a resinous glue being applied to the joints before sealing. According to the manufacturer, the cases so processed cannot warp or sag.

Mirrors; Plate Glass

Composition plaster frames, finished in a bone white, fashioned some interesting new mirror frames. Mirrors with wood designs cemented to the plate glass offered a new variety of accessory. All-glass furniture was shown by a number of manufacturers, the plate glass appearing in a new thickness and with a new polish heretofore believed impossible by machine. Particularly stressed was the glass which was finished with silver, electro-plated copper, a priming coat and paint.

Lamps; Two-Tone Heaters

Lamps which emphasized the use of all-American materials were shown in Sheffield silver to blend with 18th Century period settings. A number of the manufacturers of these sliver lamps announced the addition of special silver plating vats to produce the new bases. Terra cotta figures, painted and decorated, appeared in the form of modern heads, Blackamoor figures, etc.; and cranberry glass, crystal and painted glass, decorated old-type lighting pieces. Brass and copper were also employed for lamp bases, as well as limed oak, maple, mahogany and walnut. Porcelain,

A mahogany dresser of conservative design with metal grille in segment above mirror.

china and combinations of wood and metal were also shown.

New heaters stressed cases of porcelain and baked enamel, and featured two-tone finishes of walnut brown and tan, or deep maroon and tan crackle.

Conveyor Finishing Exhibited in Movies

While merchandising features of all kinds were employed to show new merchandise effectively, a dramatic use of 16-mm moving picture, by the Glidden Co., showed manufacturers new finishing methods. Located at the market to help manufacturers with their finishing problems, one of the movies shown demonstrated the conveyor of system finishing furniture. Showing how furniture could follow through the entire process without handling, and how pieces were loaded on removable pallets which revolved and progressed forward mechanically, the Glidden Co. held the interest of manufacturers through 20 to 30 minute showings. Mask decorating methods, antiquing, varnishing and baking with pallets moving forward through the 200-ft. ovens, on a continuous system told a vivid story of progress.

The entire market showed the effect of World's Fair display technique and marked a century of progress in design, construction and new finishes.

Accident Rates in Paint Industry

The National Safety Council has just issued its annual statistical report on accidents in the chemical industry, which includes the paint and varnish industry.

This report shows, among other things, the predominant causes of these accidents and which companies made the best records.

Copies can be obtained from the National Safety Council, 20 N. Wacker Drive, Chicago, Ill.

Alexander Milburn Co. Elects W. L. Lawrence as Secretary

Mr. W. Leslie Lawrence was recently elected secretary of the Alexander Milburn Co., (manufacturer of spray equipment), Baltimore, Md.

Mr. Lawrence filled various positions with the company, first as Baltimore representative, then on National Sales, and a short time ago became one of the company's directors. He is well acquainted in the paint-spray field.

Mr. Lawrence succeeds Mr. Harvey H. Johnson, who passed away on June 2 after serving the company for 25 years.

How Masking Tape Helped

Attaching the last strip of masking tape to front of safe. W. K. Perdue demonstrating.

BY W. K. PERDUE
Foreman Finisher

MANY TRYING things have happened here in the finishing department of The Diebold Safe and Lock Co. In an effort to please the customer we have done nearly everything humanly possible because we recognize the old saying that, "The customer is always right."

This is as it should be because a pleased customer is good advertising. Almost anything a customer wants, we strive to make. Sometimes a letter of description comes along, telling what is desired, but generally a sample is sent—and it is a sample I received recently that I write about now.

Bill Stimmie, one of our local salesmen, came into the department lugging a rather heavy wooden gate — a full size gate that looked like it had been removed from some office. It was one of those counter-height gates that are used in partitioned-off sections in business places.

"What have you got there, Bill?" I asked, squinting at the article he carried.

"That's a sample, Perdue," he replied.

"A sample?"

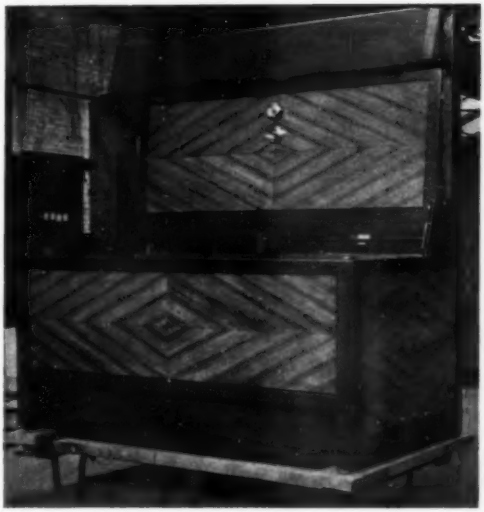
"Sure. We sold a safe like this. You have got to match it to the wood in this gate."

"Well, you have a generous sample all right, but you don't mean that we are to make a safe, paneled and blocked off like that wood is, do you?"

"Of course I do. Why not?"

I took a closer look at the gate,

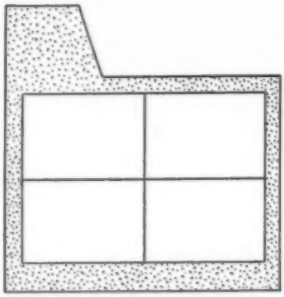
ed on a Special Graining Job



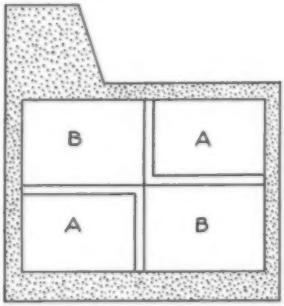
The finished steel safe, with door held at the highest position. Notice the attractive diamond-match hand graining we did on this custom job, which we grained and finished to match a sample gate of natural wood.

preferring to make sure what kind of wood it was before answering Bill's "Why not?" The wooden gate was of rather heavy construction, with both sides built alike. The frame at the sides was fluted and the top and bottom pieces were plain but of the same kind of wood, walnut. The center panel was in four sections having the appearance of being veneer and made from a wood that was entirely new to me. It looked like quarter-sawed walnut, but it was much lighter in color than any ordinary run of walnut wood. The yearly growth-lines were perfectly straight and the light and dark wood presented an attractive effect. What caused me to scan this sample more closely than usual was the fact that the four pieces set into the center panel were matched diagonally so as to form diamond-shaped figures where the lines of growth met at the dividing lines.

Nature had produced this wood so perfectly that the craftsman, in building the gate, had been able to fit the four pieces of the panel so that the darker lines matched all around, forming the diamond effect. I turned to Bill



Taking one of the ground-coated panels, for example, we drew two center lines to divide the panel into four equal rectangles for our proposed diamond-match graining. We masked the framework around the panel by taping it with regular crinkle masking tape, as per dotted section above.



We prepared to mask two opposite rectangles, AA. First we used a smooth-back tape (which in this case happened to be white in color) and applied it as shown above. This was used to give a sharp clean-cut dividing line at our center-line pencil marks.

to answer his "Why not?"

"Sure we can match it," I said. "But do you realize what kind of a job you are putting up to us?"

"Listen, Perdue," was the way he came back at me. "Any one who can make a steel safe look as near like wood as the one you made for the Warren firm a few weeks ago, can surely duplicate this."

"That's not the proposition, Bill," I told him. "This job will require the skillful use of masking tape and very careful manipulation of graining colors. And what's more, the slightest error or any blunder, as we proceed with the work, will mean the doing over of that entire panel on the safe where the error occurs. This graining will have to be so perfect that a patched-up damaged place just will not do."

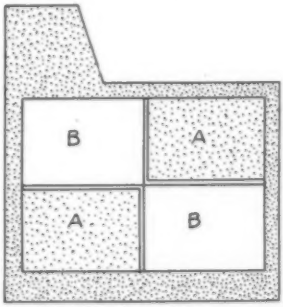
"Well, what are you going to do about it then?" he asked.

"Make it, of course," I replied.

Then followed a discussion regarding the paneling. Bill said the customer thought that, by only paneling the front, the job would be okay. Now I could visualize a beautiful looking job on this safe, but to put the fancy work only on the front, I argued, would spoil it; so I brought pressure to bear on Mr. Bill to let me panel the whole job.

"How would you do that?" he asked.

"Just like this," I replied. Taking a piece of paper, I sketched



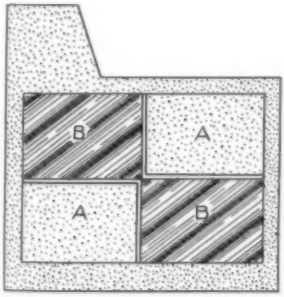
Then we used brown paper masks, cut smaller than the rectangles, and taped them in position over AA, using crinkle masking tape which we extended part way over the smooth white tape. With this done, we were ready to begin our graining on the unmasked rectangles BB.

the safe, showing a three-quarter view, with the diamond-matched paneling on front, top and ends. I talked to Bill as I sketched and explained why it was necessary to make the safe as I suggested, with the result that he asked me to hold up work on the job until he wrote the customer. A day or so later the customer's reply came. I was to proceed with the work according to the sketch I had made.

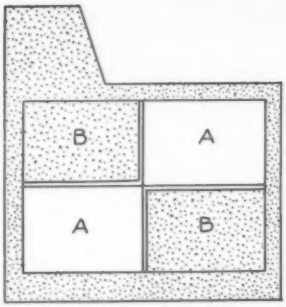
We started to work at once for, as usual, it was a hurry-up job. Now to describe just how we went about graining this safe is rather difficult to make clear, but if the illustrations accompanying this article are referred to, I believe you will get a clear picture of what we did.

Masking tape played the all-important part; without it, the job would have been much more tedious and difficult. As it was, even with the masking tape, we had a difficult job because, as you will see, we had to work with half of each panel blocked out—hidden from view—while we grained the other half.

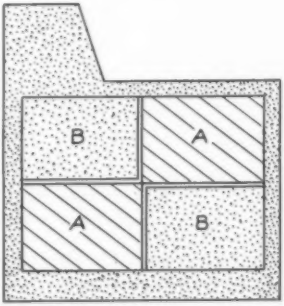
First, we laid out the panels into four equal rectangles. We were then ready to start masking. We did this by completely covering the frame parts with tape. Then we taped around the edges



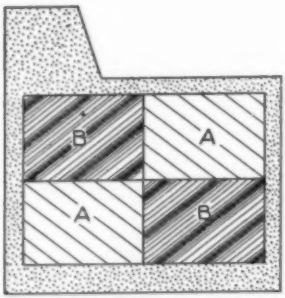
With the entire end carefully masked, except rectangles BB, we used a straight-edge as a guide and drew a few straight pencil lines (not shown here) diagonally over the masking paper to serve as a rough guide for the direction of our graining lines. Then we completely grained sections BB. We "set" this graining by spraying a clear coat of rubbed-effect lacquer over it.



When the graining color and its protective coat of lacquer were dry, we removed the masks from sections AA and put the same kind of masks over the grained sections BB. This masking left us free to begin graining sections AA, but it hid from view everything we had done on sections BB.



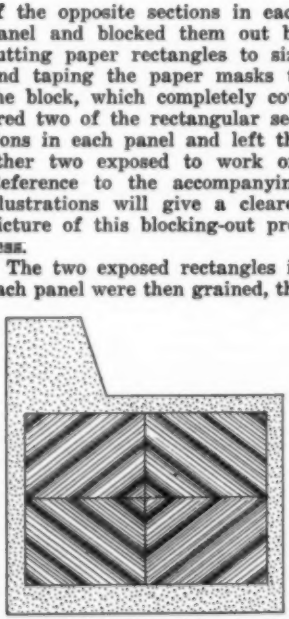
With the dark streaks or ribbons in the grained sections BB completely hidden from view, we decided to take no chances on poor figure matching, so while the masks were in place we applied only the light-colored background graining on sections AA. We "set" this light-colored background graining with clear rubbed-effect lacquer.



We removed the masks from sections BB to reveal the graining on same; then we could see just where to add the darker ribbons of graining to the light-colored background graining on sections AA. This we did easily and quickly, and then "set" the graining, as before, with rubbed-effect lacquer.

of the opposite sections in each panel and blocked them out by cutting paper rectangles to size and taping the paper masks to the block, which completely covered two of the rectangular sections in each panel and left the other two exposed to work on. Reference to the accompanying illustrations will give a clearer picture of this blocking-out process.

The two exposed rectangles in each panel were then grained, the



Here we have the graining completed on a panel—a very attractive diamond match—but the framework around the panel is still masked and not grained; it comes next.

pattern of the graining running diagonal according to the design of the wood-paneled gate we were imitating.

Lines had to be laid off around the masked edges to aid us in determining the direction of our graining pattern. As we proceeded we put in a group of darker lines about every 3-in., as it was these darker lines that formed the diamond effect.

No difficulty was encountered and it seemed as if the work, outside of being tedious, was going to progress through to completion without undue effort. The first day we got one set of blocks done in each panel, and removed the masking tape.

To the readers who have followed my articles in INDUSTRIAL FINISHING, you will recall that our method here, when doing a grained job, is to set the graining color as soon as the graining operation is done. (See "Custom Metal Finishing," March, 1940, issue.) That method was followed on this particular safe I am writing about. A few minutes after we had two blocks in each panel completed, it was possible to strip off the masking tape.

The next step was to block out the finished rectangles so as to protect them while we worked on the other two sections. In preparing to proceed with this operation we ran into a little difficulty —that of hiding from view our finished sections. You see we had to reverse our first masking, which made it impossible for us to see the work we had already done. That was our difficulty.

We couldn't see where our groups of dark lines were on the hidden sections, yet it was necessary to match them in the now exposed opposite blocks. I had

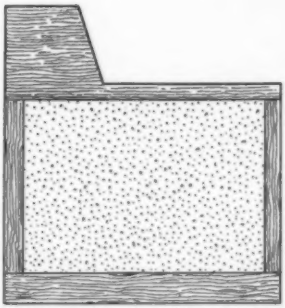
previously taken measurements of the dark groups of lines in the first rectangles but I felt that even so, we would be extremely fortunate if the lines matched exactly—by relying solely on measurements, but we went ahead with our masking.

The finished blocks were traced around with the tape, the operation being done carefully so that the edge of the tape just came to the edge of the finished graining. Then as before, these blocks were hidden from view by the taped-on paper rectangles.

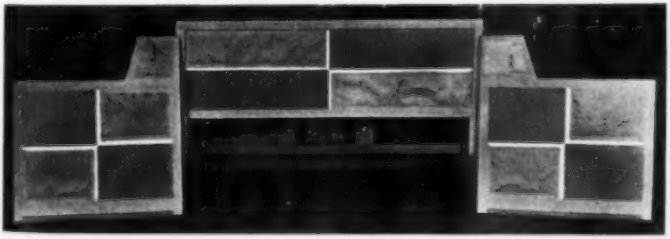
Now we were ready to grain again. By this time I had figured out how to match our dark groups of lines. We proceeded by graining these opposite rectangles all in the lighter lines; then we set them with the rubbed-effect lacquer and removed the masking. It was possible then to put the darker lines in on the second group of blocks, making them match those of the first group; and there was no danger of smudging the work because all the previous graining was set.

With the panels completely grained, there still remained the framework around the outside of the panels. Accordingly, we removed the masking tape from the outside framework and covered the grained panels with masking paper and tape. This protected the finished work while we grained the frames in dark walnut.

We set our final graining operation, removed the paper covering and tape from the panels, and our job was completed. The photograph of the assembled safe, at the beginning of this article, shows the completed work. It wasn't an easy job, but it was one that was a pleasure to work on—and the result was worth while.



We stripped the masking tape from the framework, carefully masked the entire diamond-match panel, and proceeded to grain the outer framework in dark walnut. We set the graining color by spraying on rubbed-effect lacquer.



The front and ends of steel safe completely masked and taped, ready for the graining to begin on unmasked sections. Note—The white lines dividing the rectangles were made by the smooth-back tape which, in this case, happened to be white. It was the only smooth-back tape we had available at the time. The regular light-brown smooth-back tape would have served just as well and, had we used it, would have photographed gray like our brown paper masks and our brown crinkle tape which we used elsewhere.

Murphy Chair Co. Adopts a

BY
Stephen J. Murphy, Factory Manager
AND
Earl Bell, Finishing Superintendent

TO ADEQUATELY describe our finishing system it is necessary to look back about five years at the inception of the research which has been responsible for the final development.

We had in our minds a half-formulated idea that there must be some better and less expensive method for finishing wood furniture. Also, we felt that the kind of material we were using had no advantage over any of our competitors, inasmuch as the items were fairly well price-fixed. We knew from past years experience that, from an economy point of view, particularly in mileage, varnish had some advantage over conventional royalty lacquers. Nevertheless, from a quality point of view, at that particular time, we were aware that lacquer had many desirable features. What we wanted most was a material that would have the physical characteristics of lacquer and the economy of varnish.

Through the process of interviewing various finishing representatives we made known the fact that we were in the market for this type of material. In the inception of this, which might be termed research, the usual reaction was that we were having a pipe dream—that no such finish was available.

"Mr. Earl Bell, Finishing Foreman at our plant, and I have prepared an article describing our installation of a forced-drying system, which we are herewith submitting for publication . . . . "

Stephen J. Murphy, Sec'y.

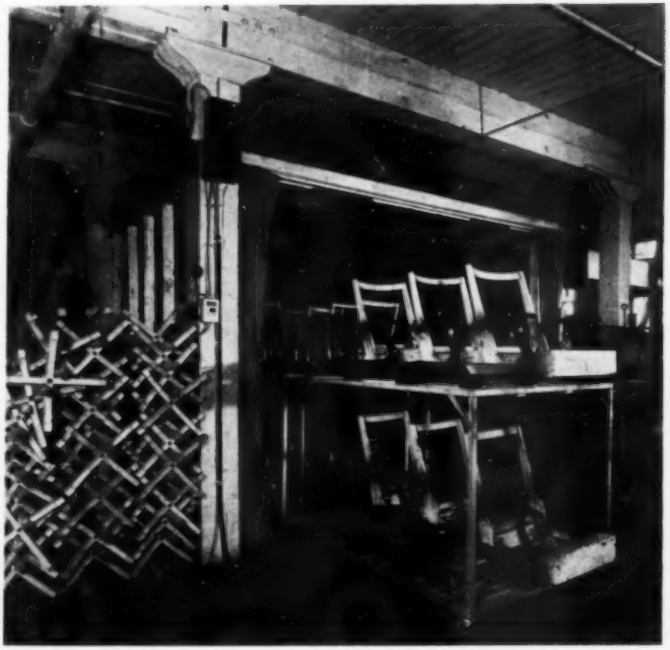
We Investigate Forced-Drying Systems

At that time there were a few moderately-successful forced-drying systems in existance, so we got all the information we could get concerning how these systems were operated and the types of material they were using. From that point we began making tests with the rather crude equipment we had available.

We converted one of our lumber drykilns into an experimental oven and ran units of our product

Murphy Chair Co., Owensboro, Ky.

a New Finishing System



This picture shows the entrance to the finishing kiln. In the method employed, at this particular operation, the spray man pushes the end truck into the kiln; this, in turn, moves the whole line of trucks (10) and forces the last truck at the end of the line out of the kiln. The canvas curtains shown in the photograph are not used. We now use an air seal which prevents warm air from escaping from kiln.

in every conceivable combination of finish. In the cases where we met with some success, test panels were made, some of which were forwarded to independent laboratories for quality check. Some were tested in our own plant under partial laboratory conditions, and some were sent as blind panels to various sources of supply for finishing materials.

Eventually, we became convinced that our theory had definite possibilities. We immediate-

ly switched from conventional lacquer finish to an air-dry varnish system, in which we used a conventional type non-royalty lacquer sealer under an overnight-dry Bakelite-type varnish on about 50% of our products. This system was only moderately successful, due to the fact that our floor space was somewhat limited.

Even with overnight drying we ran into the usual "printing" trouble experienced with varnish. However, in applying this system over a period of about 18 months, we eventually got a varnish that seemed to be fairly "print proof." But, with the rather violent heat and humidity conditions experienced in the Ohio Valley, there are seasons of the year in which it is almost impossible to use this type finish.

During this whole period we had in the back of our minds the application of a forced-drying system. Yet, from an economy point of view, if we were to use the conventional type sealer, our cost would be no less. About all

This view was taken from the end of our assembly line. The chairs are put on an endless belt conveyor and go to the spraying and filling operation. In our particular line, we manufacture a large number of oak chairs which are not sprayed, and on which we use a combination stain and filler. The conveyor is approximately 18-in. above the floor.

This system enables us to work a variable number of operators on this line—depending, of course, on the number of chairs being run through the assembly room. We have provided "stops," which are gates put in front of the conveyor line, and these allow the chairs to drag so we can take them off at any operation in case they "bank up."

The chairs move from the stain booth back on the conveyor to the filler rubber. From that point they are pushed on wheel trucks into the first section of the drykiln, which dries the filler and stain.

we could accomplish would be a reduction of necessary floor space.

We Omit Sealer Coat; Use Two Varnish Coats

Finally we hit upon the idea of using two coats of varnish without any intermediate sanding sealer. We ran literally hundreds of panel tests and unit product tests, with excellent results. We found that by using two coats that were thoroughly compatable, we materially increased the adhesion.

Naturally, our mileage for the intermediate coat was increased. By using a material with approximately 40% solids, instead of one with from 15% to 17% solids, our coverage per gallon was almost proportional to the solid content.

As we have just pointed out, our testing showed this system to be highly satisfactory, but it might be mentioned here that control tests are not always representative of a true production condition. This probably accounts for the attitude of the average finishing foreman toward those supply houses that have only "white-collar salesmen and college-degree chemists."

Where We Found Help On Our Finish Problems

To borrow from the old adage "The proof of the pudding is in the eating," this certainly applies to finishing problems. Too often the chemist holds to his theories and the salesman lacks the practical knowledge. From our experience, the house that has eventually got the bulk of our business is the one that employs a practical finish man who can run the production experiments and act as general trouble shooter.

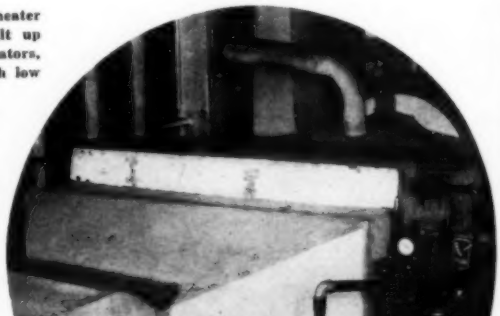
Unfortunately, the average finishing salesman has little opportunity to study the background of the particular finishing system that may be employed, by reason of some peculiarities that are characteristic of a specific account. The economic necessity for a certain number of calls sometimes prevents even the salesman with practical experience from concentrating on any one particular problem long enough to find its solution — particularly in the case where a manufacturer is interested in adopting a system that is revolutionary to his present method.

Choosing Equipment for Our Special Conditions

After having worked out the experimental stages of our system, which included the use of one intermediate coat of varnish and a final coat of Bakelite-type varnish, we were faced with the problem of selecting equipment which, in our case, had to be flexible enough to accommodate a variety of shapes and sizes. Inasmuch as our cutting orders average about 250 pieces, we felt that it would not be advisable to try to gear up the system to some highly synchronized condition, particularly after having seen some cases of the adaptation of a synchronized system in plants that make a varying product.

We call to mind the operation in one plant where there were literally no more than half a dozen pieces loaded on a conveyor, and there was an equal number of people stationed along the line to apply the necessary operations. It seemed to us right there that a prime weakness of a synchronized production is found in the

fact that, regardless of the number of pieces that are being handled on a conveyor, there are necessarily a certain number of operations that have to be performed. If the line were planned to accommodate a maximum of 100 pieces per hour, a great many of the same physical accommodations would have to be fulfilled if the production were reduced to only 25 pieces per hour.



Here is a view of the heater unit. This unit is built up with copper-coil radiators, which are supplied with low pressure (7-lbs.) exhaust steam. Circulating heat from these coils is forced into the kiln by blower fans. Control is maintained by a modulating motor valve on both the radiating steam line and the humidity steam line. Humidity is controlled by forcing saturated steam through a brass shavings filter. The consistency of the steam is so controlled that it easily mixes with the circulating air. With this system we are able to control the humidity to within a plus or minus 2%.

In reviewing our own experience in the furniture industry, we know that styles are highly perishable—particularly in a business that is somewhat controlled by a quarterly or semi-annually "model change"; consequently, planning for a long pull becomes extremely difficult, and correspondingly, flexibility is a keynote.

Naturally, our interest was diverted to some system that would give us the desired flexibility and which would, to a large extent, eliminate the handling element. Our adaptation of wheel trucks seemed logical. The trucks are 4x6-ft., with two decks, which will accommodate from 8 to 16 chairs. By double decking we reduce the amount of floor area necessary to a very minimum. These trucks are pushed on tracks through the kilns.

The time is very insignificant, inasmuch as the work can pile up ahead of any operation without shutting down preceding or succeeding operations. By using very good ball-bearing casters we found that one man could push a train of approximately 12 trucks without any difficulty. Therefore, the line is geared to the operation rather than having the operation geared to the line.

In our own operation the time necessary for spraying various products will vary as much as 500%, so it becomes apparent that, no matter at what speed a synchronized system is set, it can not accommodate simultaneously these various products efficiently.

Our Varnish Kiln Has Heat and Humidity Control

As to the installation of the kiln, the construction is comparatively simple. The side walls and ceiling are built with waterproof Celotex. The heat is supplied by two large radiating coils operated on 7-lbs. steam pressure. (Incidentally, the whole system was planned to operate on exhaust steam.) Initially, we supplied the humidity by a water spray which was picked up into the forced-draft heating system which, in turn, saturated the air to the desired humidity. However, after considerable experience, we found steam to be a much more satisfactory agent in producing humidity conditions, being more equally controlled and more easily carried through the system. Both the humidity and heat are controlled by modulating motor valves which operate from thermostats placed inside of the heated area.

Openings to Drykiln Are "Air Curtained"

One of our major problems was to provide satisfactory openings in the ends of the kiln so the trucks could be easily handled. Any type of door would obviously hinder the operation of the trucks through the kiln. We had heard of a number of ovens being used in the automotive industry that were completely open at the ends; the direction of the heat had been diverted so there was no appreciable difference in room temperature after the installation of the kilns.

We employed a firm of engineers who made a rather exhaustive study of the possibility. They first decided to create a definite pressure from the in-put and outtake, at the openings, so as to prevent the heat from escaping. This installation was only mildly satisfactory, as there was considerable leakage.

This summer we improved our room temperature conditions by installing a definite air curtain at the openings of the kilns. The pressure supplied is sufficient to prevent any heat escaping from the interior of the kilns by gravity.

Improvements in Varnish Help To Give Us a Better Finish

In further reference to the adaptation of materials, new type varnishes seemed to employ a more satisfactory kind of flattening agent than the old varnish that we used a few years back; the driers have been speeded up considerably. Apparently varnish makers have learned a great deal from lacquer manufacturers as to the adaptation of solvents and driers; consequently, there are available far superior varnishes than there were a few years ago, and at lower general cost.

Physically, normal difficulties that will be encountered in the adaptation of a forced-drying system are blistering and glossy spots, which are apparently due primarily to the type of solvent used in the material. This effect seems to be found whenever case-hardening is experienced. To get the proper type of drying without

blistering, it is absolutely necessary for the film to dry from the bottom up. Otherwise, aside from the difficulties just listed, there will be a tendency for graying and puffing.

A varnish-like material seems to produce a better drying condition for basic filler and stain coats. With this slower type material there is less tendency for the filler and stain solvents to be trapped; also, it eliminates the graying of filler in pores. Basically, this is a great aid to the ultimate finish.

Our Finishing Schedule; Varnish Flow-out Time

A schedule we finally set up is:

One hour for the filler or pigment stain coat;

One hour for the intermediate or sealer coat;

Two hours for the top coat.

As far as flow-out time is concerned, our physical layout allows a minimum of 15 minutes between coats. This time has been found to be sufficient. This allowance for flow-out can be easily controlled in a system where there is no fixed time movement of product. If for some reason we should find it necessary to provide half an hour flow-out time, it would not particularly upset our procedure. This, of course, is not true in a synchronized system where the movements must be constant. There are some installations that do not allow adequate flow-out time, or perhaps they allow too much. The specific material that is employed will control this to some extent.

Kiln operating conditions are important. We have found that for our particular purpose a temperature of 140°F., with a relative humidity of 35%, seems to be ideal. However, these schedules can be adjusted if temperature and humidity are held in ratio. It is important to operate the wet and dry bulbs according to the initial moisture content of the wood products being run through the oven. Of the two climatic controls, humidity seems to be the hardest to control and the most essential. Yet, with the type instruments that are available from any number of manufacturers, little difficulty should be encountered in setting up an equal and consistent condition.

A rule that might well be followed is that the more time a wood product is to be left under high temperature drying conditions, the more humidity should be supplied. However, it is not recommended to exceed 41% relative humidity. Our experience is that when you go over this point you have a certain amount of condensation within the oven.

Excessive Kiln Heat May Harm Glue Joints

If it is possible to dry the finishing material in as little time as 30 minutes, a temperature of 170°F. will probably not cause any wood failure. However, with animal hide glues, there is a very definite tendency to put the glue into liquid solution when a heat of over 150°F. is reached, provided that the glue has not had an overnight set. On glued stock that has set overnight, probably no heat up to 170°F. would be really harmful.

Finally, the success of any installation of this type is due to the ability of equipment engineers and the finishing suppliers to coordinate their work successfully.

Something New in

FINISHING . . . *and* FINISHING MATERIALS

The Murphy Chair Company of Owensboro, Ky., adopted Perfection Flat Varnish for use in their new force dry kilns because it is totally different from conventional Flats in that:

1. Perfection Flat Varnish is an all gum flat containing no stearates or other foreign flattening agents.
2. It is exceptionally clear—positively does not give muddy appearance to stains.
3. It is *waterproof* and *liquor proof*.
4. It is inexpensive.

This same Perfection Flat (free from stearates) is also made for air drying.

Perfection *Sealer* Varnish used under Perfection Flat sands like lacquer sealer . . . . . but gives an undercoat as tough as gloss varnish.

Perfection *Sealer* Varnish cuts sealer costs more than 60%.

Try This Immersion Test!

Panels coated with Perfection Flat Varnish can be immersed in water for 30 days without turning white or showing any other ill effects. We can tell you a lot more. Drop us a line and we'll send panels and samples . . . . and we'll also send a panel in water for 30-day immersion test.

PERFECTION PAINT & COLOR CO.
INDIANAPOLIS, INDIANA

Processing and Finishing

BY C. O. JUDD
Chief Chemist

THE METAL is now ready to enter the paint spray room. Considerable time and careful study should be given to developing and maintaining proper spraying technique, both for economy and quality in finishing. Substantial savings have occurred in metal finishing as a result of introducing proper spraying methods. When conveyor chains are carrying anywhere from one to several thousand square feet of metal per hour, and three or four spray men have large industrial spray guns in their hands, a great amount of paint may be lost or saved. Considering paint as costing approximately $2.00 per gallon, and each man spraying nearly 15 gallons of paint per working day, it is obvious that each man can waste or save his wages by his spraying technique.

Correct Spraying Technique

Small pieces of metal should be racked in such a way that a minimum of overspray occurs. On long thin pieces of metal, spray guns should be so regulated as to allow the spray to cover, as nearly as possible, the width of the metal without overlapping. Smaller sprays of paint that take two strokes on the strip are often profitable. If a film of paint is found to be the desired thickness, then no more nor no less paint should be used.

In order to regulate production control, the spraying stroke and speed should be considered first. For example: If a panel 2-ft. wide and 4-ft. long is to be painted, experiments should be made to obtain the proper thickness of film. Spray guns should be triggered at the start and completion of each stroke. There should be no wrist movements from the time the gun is triggered open until it is closed. The spray operator should hold the spray gun (6 to 8-in.) to the surface being coated. The so-called fanning of a spray gun, when painting, is one of the most extravagant movements possible. It has proved to be a waste of time and material. If tests show that seven strokes will give the proper thickness of film, then no more strokes should ever be made.

Fluid and air pressure deserve much consideration and thought. A sufficient amount of fluid pressure should be employed to supply an ample amount of paint for the disposal of the particular size spray gun being used. Sufficient air pressure should be used to completely atomize the paint, but absolutely no more, if the best quality work is to be accomplished with real economy. These conditions will be realized and adjustments can be made as one becomes familiar with the different conditions and problems.

Refrigerator Cabinets

PART 2

Synthetic paint-mixing room. Notice pumps on the floor; also supply lines leading to spray booths—return lines overhead. Photo, courtesy Hoosier Lamp & Stamping Co.

Spray Room Must Be Clean

Cleanliness in the spray room is always desirable for a quality finishing job. Consideration should be given to the velocity of air that passes through a spray room of this type. Also, the temperature and humidity of the air should be controlled to within reasonable limits. Paint should never be sprayed in a room where the temperature is less than 60°F. or more than 100°F.

In high-air-velocity spray rooms, every consideration should be given to dirt pickup. It may be necessary for the workmen's clothing to be lightly sprayed with a non-drying varnish, such as is used in the preparation of tack rags. Any one wearing ordinary street clothes, particularly

a wool sweater or fuzzy overcoat, should not be allowed to enter a closed air-conditioned spray room. One will quickly learn these things in regard to dirt pickup, or in a very short time he will be wondering where all the dirt came from. Considerably more could be said in regard to spraying technique and the management of a spray room. I have touched on only some of the more important points; other details will soon be picked up through experience.*

Filtering Air That Enters Spray Room

Air that enters and passes through the spray booths should be thoroughly filtered to clean it. Many headaches and worries are caused by inadequate filtering setups. Manufacturers of air filters have engineers who are familiar with this phase of finishing-room equipment and they are in position to specify and install satisfactory air filters — and to instruct users how to maintain such filters in a state of high efficiency.

Coal smoke that enters in the air through such a system can be noticed in deposits upon the freshly painted work. It is beyond the writer to recommend a system for the filtering of smoke, other than a paper gauze that is offered on the market, and I would be unable to state as to whether or not this would completely eliminate such trouble. A sufficient amount of clean air must be supplied to spray-booth rooms so that all openings will have an outward pressure and no shop air will be admitted.

*Spray equipment manufacturers supply free books which explain how to use spray guns.

Spray-painting on a production line calls for skill, alertness and good eyesight.

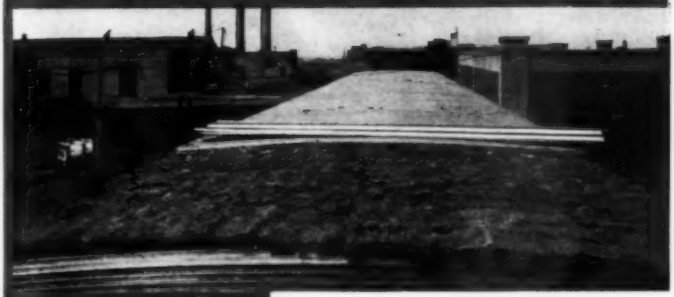
Paint Mixing Room; Temperature; Viscosity

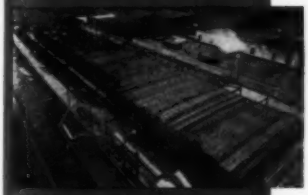
The mixing room should be one of the cleanest places in the entire establishment, and its temperature should be closely regulated or under reasonable control. It should be large enough to serve as a storage room also—or it may adjoin the storage room where drums of material are kept. Finishing materials seldom if ever work satisfactorily when applied "cold," that is below a minimum temperature of say 60°F. It isn't good practice to raise the temperature of cold materials quickly. If drums of paint are brought in from a cold room they should be allowed to remain undisturbed in the warm room for two or three days or more before they are opened for use.

If large quantities of material are used, two or more mixing

OVENS

LOCATED ON THE ROOF





. . . Save Valuable Floor Space in Industrial Plants

Due to size and other characteristics common to Industrial Drying and Baking Ovens in large scale production finishing, Mahon engineers developed the Roof Type Oven to save valuable floor space within manufacturing plants. This Oven, normally erected on the roof of the plant directly above or in conjunction with other finishing operations, is constructed of firesafe, weatherproof steel inside and out . . . it can be insulated to maintain any desired temperature regardless of local climatic conditions. If you are contemplating new Drying or Baking Ovens Mahon engineers will gladly give you complete information and show you the advantages and economies of this new type Oven—Write today.

THE R. C. MAHON CO.

DETROIT — — CHICAGO

Designers and Manufacturers of Complete Finishing Systems, Metal Cleaning Machines, Rust Proofing Machines, Drying Ovens, Hydro-Filter Spray Booths, Baking Ovens, Hydro-Foam Dust Collectors and Many Other Units of Special Production Equipment.

MAHON

tanks may be needed so as to allow the production supply to be coming from one tank while the future supply is being prepared in an alternate tank. This arrangement is also desirable if pressure tanks are being used.

Close control of the viscosities of undercoats and enamels, at given temperatures, is essential in refrigerator whites.

If the paint-circulating system, through friction, heats the material above the desirable maximum temperature in warmer weather, cool water should be kept circulating on the outside of all tanks to insure a uniform temperature within the specified range. Circulating systems must not be allowed to stop, since the circulating and continuous agitation of such types of synthetic enamels as alkyds, glyptals, or modified ureas, are always necessary.

Even if the paint supplier is confident that paint can be delivered to you on the promise of being "free from dirt or lint," it is still desirable to filter the material through a fine-mesh screen. Too much emphasis can not be placed on the elimination of dirt and lint, since this is one of the important factors in the acceptance or rejection of the finished work.

Prime Coat Requirements

Little can be said in regard to the primer and finish coatings—after the suggestions of spray techniques are applied—with the exception that consideration should be given to the sheen of the prime coat. For a refrigerator finish, glyptal primer of the high-hiding type, one neither too dull nor too smooth, is often used. Generally speaking, the more dull the prime coating, the more absorbing it is relative to the finish coat, and the more adhesion may be noted. A primer that presents a smooth hard lustrous surface is undesirable because it doesn't offer satisfactory adhesion or penetration for the intermediate or finish coat. There must be a close bond between coats. Practical experience on the production line will be a deciding factor in your choice of the primer for a refrigerator finish.

(Part III will appear next month)

"Paintgrip" Steel Panels

The American Rolling Mill Co. Middletown, Ohio, announces that its patented product "Steelox" was used in the construction of a commercial building 95x45x30-ft., in Cincinnati, Ohio.

Fabricated from a special galvanized metal known as "Paintgrip," the interlocking panels are ready to paint immediately following construction. This metal not only takes paint without acid etching or weathering, but helps preserve the essential oils that give paint its elasticity and life.

Spray Painting School

The DeVilbiss Co., Toledo, Ohio, announces the schedule of their training school for the last half of 1940 — to be held in the company's Toledo plant. The school is open to industrial painters, master painters, automobile refinishers and all others interested in learning the technique of spray-painting and the use and care of spray-painting equipment.

Each training period lasts for one week. Classes begin on Aug. 26; Sept. 23; Oct. 21, and Dec. 29. Special rates in Toledo hotels and boarding-houses near the plant have been secured by the company for men attending the school.

It is advisable to enroll in the school as far in advance as possible, since the size of the classes must be limited, and since there will be no training period other than those announced. Complete information may be obtained by writing The DeVilbiss Co., Toledo, Ohio.

Metal, Wood, Composition Board and a variety of other industries have already followed the auto industry in adopting the Ross Air Heater Systems for processes requiring a reliable and economical source of high temperature air. These oil or gas fired air heater systems provide temperatures above those economically obtainable with steam; they insure a better product and saving of time, fuel and floor space. Look into the possibilities for your product or process. Mail the coupon for bulletins.

J. O. ROSS ENGINEERING CORPORATION

350 MADISON AVENUE, NEW YORK, N. Y.

201 N. Wells Street CHICAGO

3503 California Ave. PITTSBURGH, PA.

12953 Greeley Avenue DETROIT

Air Heaters ☐ Industrial Ovens ☐

Please send Information on the Subject Checked

NAME.....

COMPANY.....

ADDRESS.....

Sanding Car Surfaces for Repaint Jobs

BY C. J. FARRAL

Photograph, courtesy of Detroit Surfacing Machine Co.

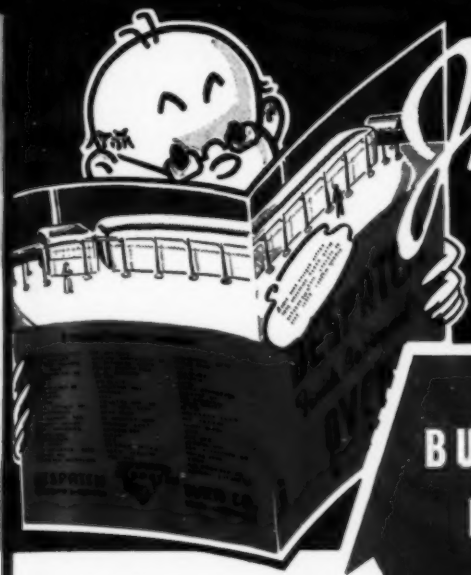
IN THE PAINT SHOP of the Indianapolis Railway's car maintenance and repair plant, street cars, trackless trolleys and buses are being continually reconditioned and repainted to keep them presentable. The company has a total of 361 of these public transportation units and 60 units of service equipment, all of which are painted in the same colors. Every unit must be repainted and relettered once in four years. In other words today's repaint job must last four years and still be reasonably presentable.

The repainting is all one-coat work—a snythetic air-drying enamel in yellow and blue—sprayed on with modern equipment which includes a 60-ft. canopy with ample exhaust facilities. Air pressure, material pressure and material viscosity are kept within close limits to assure uniformity in the results accomplished.

As in practically every type of product painting and repainting, the preparation of surfaces is especially important. Roofs, sides and ends of these public transportation cars are carefully sanded and wire brushed to prepare them for repainting over the old paint.

Sanding Prepares Surfaces for Quality Repaint Job

The object of sanding and wire brushing is to cut down any pimples that may have remained or developed in the previous coating, cut off any loose or flaked paint, brighten up rust places, featheredge around areas that need it, smooth any rough places that may



Just OFF THE PRESS

BULLETIN NO. 51

Baking and Finishing Ovens

BULLETIN No. 51 is devoted to important new improvements in Finish Baking and Drying Ovens . . Note Despatch Streamlined oven design —new convected air principles (heat distributing, circulating and recirculating systems) . . . Read about the New Direct "Controlled Combustion" Gas Fired Air Heater — New Indirect (oil or gas) Fired Air Heater. Many more engineering advancements are discussed in the bulletin. Write for Bulletin No. 51 immediately.

Here is a bulletin of Finish Baking and Drying Ovens that will be interesting to every *general manager, production manager* and *paint department superintendent* in the industry. Bulletin No. 51 should be in every executive's file. It profusely illustrates installations and diagrams operating features. If you plan on purchasing a new oven, or to obtain more efficiency from old equipment, write on your letterhead for this Bulletin immediately. It will be sent to you by return mail.

DESPATCH OVEN CO.

MINNEAPOLIS, MINNESOTA

Now, with the new DULUX, you can reduce a 29-hour finishing schedule to 7½ hours from sealer to packer!

THE new Du Pont DULUX finish for furniture means great savings in time and money on finishing schedules.

1. Made to dry quickly, at elevated temperatures—as low as 1½ hours at 140° F. —DULUX offers you a 5½ to 7½-hour finishing schedule from sealer to packer . . . as compared to the usual 29 to 43-hour schedule for varnish, and the 22 to 28-hour schedule for lacquer. DULUX also saves time because it's easy to rub.

2. The unusual build of DULUX means that you need only one coat, instead of the two coats usual with lacquer. Material savings up to 30% are possible.

With these two *different* advantages, DULUX makes possible a faster production line than ever before. You'll like the character of DULUX, too. It has a clear, bright film with excellent depth of appearance. It has the resistance to cold cracking, scratching, printing, marring, water and alcohol you expect from high quality lacquer.

In fact, DULUX is a finish that combines the flow and build of varnish and the speed and quality of lacquer.

If you are interested in streamlining

DU PONT

REG. U. S. PAT. OFF.

DULUX

REG. U. S. PAT. OFF.

FULFILLING AGAIN THE DU PONT PLEDGE OF BET

...p.h. was "burning up the road"...

NOW CARS GO 3 TIMES AS FAST IN SECOND GEAR!

r production line, investigate LUX—the finish that again fulfills Du Pont pledge: "Better Things for ter Living . . . through Chemistry." full information, write E. I. du Pont Nemours & Co. (Inc.), Finishes Div., lmington, Delaware.

LUX FOR FURNITURE

BETTER THINGS FOR BETTER LIVING THROUGH CHEMISTRY

YARNALL DIPPING ENAMELS

Courtesy Neiman Steel Equipment Company

- NON-SETTLING
- NON-FLOODING
- NON-SKINNING
- NON-SAGGING

Whether it is for baking or air drying, Yarnall Dipping Enamels are superior in many ways. Adaptable to all dip applications of metal filing cabinets, steel shelving, metal furniture, etc. They are marproof; hold up on top edges and corners. They remain uniform in the tank. Available in all colors, including standard olive green. Samples and complete information furnished on request.

YARNALL
THE SHIELD OF PROTECTION

YARNALL
PAINT COMPANY
Industrial Division
Philadelphia · · Penna.

be present, and lightly but almost invisibly "scratch" the remaining smooth hard finished surfaces to prepare them for more enduring paint adhesion. The sanding job includes power disc sanding of the roof, power wire brushing, power stroke sanding (see illustration) and a small bit of hand sanding.

The paint over the canvas roof is subjected to severe service which frequently causes cracks to develop in the paint film. Since whorls or the circular marks from disc sanding are neither visible nor objectionable on the roof, and since it requires heavy power sanding to smooth out the hard worn roof paint film, the company has adopted power disc sanders for use on car roofs.

The sanding machine used for roof work is of the portable electric type and it is fitted with discs of very coarse, open-grain abrasive paper. Two men work on the roof. One uses the portable electric disc sander on the curved and flat areas of the roof, while the other works by hand with a scraper and hand sanding block on the ventilators. On a large street car, this roof sanding requires the work of two men for about 2½ hours, or five man-hours.

Next comes the sanding of the sides, front and back of the car. Formerly this work was all done by hand sanding and required 16 man-hours. Today, with the aid of an electric-driven stroke sander and the electric-driven rotary wire brush, plus a minimum amount of hand sanding, the work is performed more satisfactorily and more easily in just half the time—in 8 man-hours.

The rotary wire brush, hollow in the middle, is used for cleaning around the raised rivet heads. Then a man follows with the small electric sander which has a rapid forward and backward stroke in imitation of very fast hand sanding. This machine takes power from an ordinary electric light socket and weighs only 6½ lbs. It is held to the surface being sanded with convenient handles, as shown in the illustration at the beginning of this article.

The abrasive paper now being used on the portable sanding machine is No. 80 Cutrite—lightweight paper with an abrasive that cuts without leaving visible scratches when applied by the single-pad stroke sander. Practically all flat and gently curved surfaces are sanded with this machine. A few recessed places, corners and molded edges that can not be reached by the machine pad, are hand sanded. This hand sanding is the final follow-up.

The portable sander pad is loaded with four strips of abrasive paper placed one above the other before starting, and these four strips are generally used in the sanding of a single car or bus. The standard sheet of abrasive paper, 9x11-in., can be cut to make three strips for the machine. With the completion of all sanding, the entire car is dusted off clean and the sides are examined for places cut through to the metal. These places are prime coated by spraying.

The following day the car is washed down with lacquer thinner and wiped clean; the windows are masked and it is ready for spraying. The roof paint is brushed on. All lettering, numbers, monograms, etc., are applied by the decalcomania (transfer) process, the decals being made in the company's paint shop by the silk-screen method of reproduction.

Finishing Wood Handles

BY R. C. TAFT
Manager, Batchellor Works
American Fork & Hoe Co.

As Told to
FRANCIS A. WESTBROOK

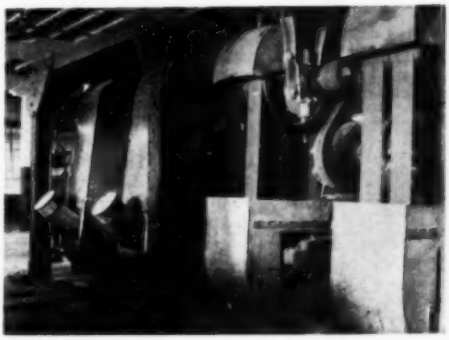
THE AMERICAN FORK & Hoe Co. has been making high quality hand agricultural tools at its Wallingford, Vermont, plant for nearly 150 years. The company has always emphasized quality and has kept up with the ideas of the public in this respect —which now calls for beauty of finish, as well as utility. It is a distinctive quality of American tools that they are designed for light weight, ease of handling, and adaptability to the service which they are to perform. Wooden tool handles must feel right to the practiced hand. They must be free from anything rough that will chafe the skin. They must also have the proper "slip" as they are handled, and must not be tacky or sticky.

Practically all of these tools have wood handles, made of carefully selected ash, and every effort is directed toward giving them a smooth, durable finish. However, all finishing operations are carried on with economy and effectiveness.

Standard handle finishes include a natural wax, clear lacquer, and colored lacquer. Some of the special handles are given a "fire hardened" finish.

After the handles have been turned and shaped they are smoothly sanded. First they are sanded on a belt sander of the usual type with No. ½ garnet grit. This is merely a preliminary sanding which prepares the handles for the ferrules. Straight handles, such as those for rakes and hoes, are then taken to a special tandem sander designed by the company's engineers. Handles are inserted in one end of this machine and travel through it lengthwise at the rate of 48-ft. per minute. As they travel

(Continued on page 48)



Long straight handles are sanded on this special tandem belt sander, in preparation for finishing.

EGYPTIAN high-bake N.F.R.

A tough, mar-proof, chemically resistant synthetic finish for all types of metal products . . . Extremely durable. Increases resistance to abrasion and other forms of wear

WIDE RANGE OF BAKING TEMPERATURES

SPECIAL UNDER COATS FOR ROUGH CASTINGS WHICH AIR DRY FOR SANDING YET MAY BE BAKED AS A COMPOSITE FINISH AFTER APPLICATION OF EGYPTIAN high-bake N.F.R.

ONE COAT DIRECTLY ON SMOOTH METALS. NO PRIMING COAT NECESSARY.

Ask for further information

THE EGYPTIAN LACQUER MANUFACTURING CO.
ROCKEFELLER CENTER
NEW YORK

EGYPTIAN FINISHES

EGYPTIAN FINISHES

• In addition to High-Bake N.F.R. we also make a complete line of clear and pigmented lacquers for standard and individual requirements. These are furnished for spray dip or brush application . . . Air-dry and bake.

Ask for details

EGYPTIAN Superior FINISHES

NO NICKS ON THIS COCA-COLA COOLER!

Coin-operated Coca-Cola Coolers, like this one at the University of Georgia, are finished with extra-tough Polymerin. Mills Novelty Company, maker of these Coolers, knows that the finish it uses must be attractive. It must protect the machine from nicking and chipping. It must not be affected by moisture; it must resist the deteriorating effects of damp cold. Polymerin meets these difficult requirements! In addition, it offers speed-production advantages. Have you investigated Polymerin's money-saving benefits?

LEADING MANUFACTURERS LIKE MILLS NOVELTY COMPANY USE THIS EXTRA-TOUGH SPEED FINISH

Alert manufacturers in many industries have found that durable Polymerin* finish offers them important sales and production advantages. Mills Novelty Company, Chicago, is the largest vending machine manufacturer in the world. Mills and other Polymerin users *know* that Polymerin can save production dollars and brings them these benefits:

1 ***Polymerin Is Amazingly Durable.*** Through the intricate chemical action of polymerization, Polymerin forms a remarkably tough, resistant film. On Mills' Dispenser for Coca-Cola in bottles, and on scores of other metal products, Polymerin stands up under rough treatment, in or out of doors.

2 ***Polymerin Adds "Eye Appeal."*** Baked hard onto metal, Polymerin's lustrous surface attracts customers' eyes. Beautiful Polymerin, in white and colors, helps to sell refrigerators, stoves, household appliances, bicycles, kitchen cabinets, and scores of other products where beauty, as well as durability, is an important sales factor.

3 ***Polymerin Speeds Production.*** The original, speed-bake finish, Polymerin has reduced baking schedules from hours to minutes! Polymerin formulations can be used with the infra-red equipment to cut baking times to new lows.

*Reg. U. S. Pat. Off.

THIS NEW BOOKLET TELLS MORE ABOUT POLYMERIN

FREE! "Facts on Polymerin," a brand new booklet showing how Polymerin is being used in many industries, is now available to you. Mail this coupon.

AULT & WIBORG CORPORATIO
Dept. I. F. C., 75 Varick St., New York, N. Y.
Please send me my copy of your new booklet, "The Facts on Polymerin."
NAME _____
COMPANY _____
ADDRESS _____

AULT & WIBORG
Polymerin
THE ORIGINAL SPEED-BAKE FINISH

through they are rotated and are belt sanded under pressure. Eight belts are arranged in four groups starting with No. 1½ garnet, and then progressively diminishing to much finer grits; there are two belts for each size abrasive.

Some types of curved handles are bent after sanding, in order that they may be made smooth on the high-production tandem sander. Others must be bent before sanding; these have to be smoothed on ordinary belt sanders. However, the volume of the latter type handles is comparatively small.

Following the sanding operations, the handles are ready to be coated with finishing material. Those to be dipped in lacquer are transferred by trucks to the dipping room. This room is completely air conditioned, both for the removal of fumes and also to maintain suitable drying conditions. When the handles come in they are racked on special carriers which are suspended from a monorail, for immersion in tanks of lacquer. The tops of these tanks are level with the floor; the monorail passes over them so that the carriers may be lowered directly into the tanks. Specially prepared, fast-drying lacquer is used, as prescribed by lacquer engineers.

After the handles are dipped the carriers are pushed along the monorail which, at this point, extends over drip pans which catch the lacquer drippings and return same to the tanks. Drying takes about 20 minutes; then the handles are removed to the assembly department.

Those handles that are to be finished with natural wax are delivered to a machine where they are passed over a waxing belt heated by steam coils and carrying the waxing material. The handle is held by the operator and given a rolling motion as it is pressed against the belt. The wax contains carnauba wax, beeswax, white lead and varnish.

Wood handles finished natural are given a burned imprint which shows the trade mark and catalog number for permanent identification. The hot die burns the background and leaves the lettering in the natural wood. Handles finished in colored lacquer receive a richly-colored embossed label.

Free Booklet on Paint Pigment

A technical booklet describing the new "Ti-Pure" LG, a pigment for use in tinted exterior nitrocellulose lacquers and alkyd enamels, has been issued by Krebs Pigment & Color Corp., 1007 Orange, Wilmington, Del.

The new pigment is a development of a four-year research program by Krebs chemists. It is designed to overcome known disadvantages in currently available pigments. Its slightly bluish green color precludes its use in whites, but offers no difficulties in the preparation of clear bright tints and bluish greys.

Ferro to Make Synthetic Enamels

The Ferro Enamel Corp., Cleveland, Ohio, manufacturers of Ferro Porcelain Enamels, has entered the synthetic-finish field. Through a wholly-owned subsidiary, The Liquid Plastic Corporation, Cleveland, Ohio, the company will offer a line of "Vedoc" finishes for use on sheet metal products of all types.

In announcing the new product, Mr. Weaver, president, states: "In our opinion there is no finish which compares with porcelain enamel in beauty and durability. Throughout the ages it has won an enviable reputation as the finest finish obtainable.

"There is a demand, however, for a high-quality, lower-fusing finish to be used on lighter gauges, seamed or welded parts and on stampings of complicated design not suitable for porcelain enameling.

"Our foreign subsidiaries have been particularly insistent in their demands for such a finish, so some

LET A *Slicker Coat* REVEAL THE BEAUTY OF YOUR PRODUCT!

The coat you put on your product is all important . . . it will either reveal and enhance beauty or it will depreciate eye-appeal. Whichever effect the coat may have is reflected very definitely in sales.

To give your commercial product a slicker coat or a finer finish that will make it more attractive and more sales - worthy we offer the services of our creative studio. There is no cost to reputable firms for this service. Write for complete information.

ROCKFORD VARNISH COMPANY

Manufacturers of Finishing Materials

ROCKFORD • ILLINOIS

months ago we established a special laboratory to do research on organic finishes."

The Company will continue with the manufacture of Ferro Porcelain Enamels, started in 1920. Since that time, the business has grown steadily and the company now operates a large plant in Cleveland as well as branch plants in Canada, England, Holland, France, Brazil, Argentina and Australia.

Ferro, in 1933, installed a very large laboratory for porcelain enamel research and control and at the same time announced a program for the diversification of its products, starting with a line of glazes for the pottery-field.

In 1937 the Company's factory was completely revamped; new and especially-designed equipment was added for the mechanical handling and processing of Ferro products.

In 1939 Ferro entered the raw pigment field, with a complete line of Ferro colors for use in porcelain enamels, pottery glazes, glass, plastics, synthetic finishes, inks and other coloring-agents.

"Vedoc" finishes will be manufactured in a new plant located adjacent to the Ferro porcelain enamel manufacturing plant. Because of this it is believed that the new line can obtain advantages offered by the present plant and laboratory.

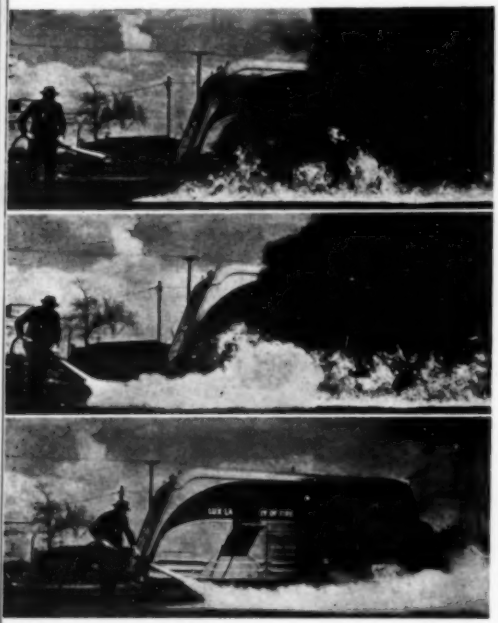
The name "Vedoc" is coined from the words versatile, economical, durable, organic and colorful. The trademark of the product will be a checkmark, similar to that used for nearly 20 years to identify Ferro Porcelain Enamels as "checked for uniformity and purity."

Mr. L. S. O'Bannon will be in charge of the manufacture of "Vedoc" Synthetic Finishes.

Smothers Oil Fires Quickly

The accompanying pictures show views of a gasoline-and-oil fire being smothered in the amazing time of 12 seconds, by a cloud of carbon dioxide gas.

Carbon dioxide or dry-ice gas, science's lates contribution to the technique of fire-fighting, demonstrated its speed in a spectacular test staged in Des Moines, Iowa, recently. Pictures were taken with a fast camera, at intervals of four seconds, to show how a roaring gasoline-and-oil blaze can be smothered by clouds of the non-poisonous gas coming from the nozzle at a temperature of 110° below zero. The test was sponsored by the Des Moines Fire Prevention Bureau, and was staged by engineers of Walter Kidde and Co. (140 West St., New York, N. Y.) who developed this newest defense against oil-and-gasoline fires, and whose demonstration car, shown in the background carries thousands of pounds of compressed carbon dioxide.



View No. 1, shows the demonstrating engineer, allowing the oil fire to get a good start, while he awaits the signal to go.

View No. 2, taken four seconds later, shows gas rushing from the nozzle and billowing over the flames. Carbon dioxide functions by cutting off fire's oxygen supply, thus smothering it.

View No. 3, (fourth in the series made) snapped 12 seconds after the fire started (8 seconds after No. 2) shows the engineer advancing behind a "snow barrage" while flames go out.

Another FRAM IMPROVEMENT!

BERRY BROTHERS INFRABAKE USER

● With Berry Brothers Infrabake Enamels, the makers of Fram automobile oil filters now combine the durability of a baked enamel finish . . . with a conveyor speed of 10 feet per minute . . . and time in tunnel between 3 and 4 minutes.
Write for further information.

BERRY BROTHERS
Industrial Varnishes • Enamels • Lacquers
DETROIT, MICHIGAN • WALKERVILLE, ONTARIO

JERSEY CITY • BOSTON • CINCINNATI • CHICAGO • ST. LOUIS

Sands Irregular Shapes

Machine sanding very irregular-shaped wood parts or products, in the white or after application of the sealer coat or prime coat, is something many production men have wished for. The Vonnegut Brush-Backed spindle sander is a development offered for this service by the Vonnegut Moulder Corp., 1800 Madison Ave., Indianapolis, Ind.

At first glance the machine might be mistaken for a directly motored pedestal grinder or buffing machine. Each end of the extended motor spindle carries a special sander head—a rotating head loaded with eight wound-up lengths of shredded sand cloth supported by stiff fiber brushes front and back. Work is brought into contact with the strips of abrasive which are backed by radially-extended brushes on the surface of the revolving head.

Bristle-supported, shredded, abrasive cloth reaches into irregular shapes.

The effect of this sanding principle is developed by two, somewhat opposing, actions of the brushes. First, there is the yielding action of the bristles, which allows the abrasive strands to arrange themselves to the contour of the work. On the other hand, there is the resistance of the bristles, which supports—or in other words, backs up—the strips of abrasive during the cut.

Further details about this ingenious machine, which is adaptable to such a great variety of work ordinarily performed slowly and expensively by hand sanding or hand steel-wooling, can be obtained by writing the manufacturer for illustrated bulletins.

New...

MATERIALS SUPPLIES EQUIPMENT

Marine Wood Primer

Development of a new marine wood primer is announced by the Finishes Division of the Du Pont Co., Wilmington, Del.

Du Pont marine wood primer is recommended for use as a first or primer coat on new exterior wood surfaces or on surfaces where all the old finish has been removed and where finish coats of "Dulux" marine clear are to be applied. It penetrates the wood and acts as a sealer, retarding the absorption of moisture at butts and joints. The use of this primer, it is claimed, adds to durability and gloss retention of finish

★Used and Preferred by
WOOD FINISHERS

Ewing Galloway, N. Y.

Pressure sensitive adhesive tapes are used in large quantities for protection of woodwork, edges, polished surfaces, for shipping and wrapping; for color separation, striping and masking; to prevent chipping and to hold movable parts in place.

This quality line of tapes facilitates production and helps save time and money.

Send us your tape problem. Our laboratory offers full cooperation, without obligation.

INDUSTRIAL TAPE CORPORATION
NEW BRUNSWICK, N. J.

★PERMACEL
The Paper Backed Tape

★JONFLEX
Fine Cloth Tape

★INDUSTRIAL
Coarse Cloth Tape

UTILITAPE
Waterproof Cloth Tape in Standard Colors

ELECTAPE
With Flexible Bakelite Coating

METACEL
Metal Foil Backed Tape

TEXCEL
The Cellophane Tape

•

Samples on request

coats, thus reducing any tendency of the finish to peel away from butts, joints, cuts and scratches.

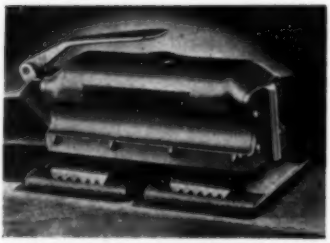
Incidentally, "Dulux" marine clear is noted for its brilliance and long-lasting qualities. It is a quick-drying finish that gives excellent service on spars and bright work despite sun, wind, water, gas and oil. Under normal conditions, it will not turn white. It is said to resist temperature changes, to retain its gloss and good appearance throughout the whole boating season and often during the winter lay-up.

Looks Like Chromium

Edward C. Ballou Co., 6 Varick St., New York, N. Y., sends us a color card that shows a beautiful sample imitation of real chromium-plated finish. According to the company, the material for producing this finish is available in paste form and can be mixed with quick-bake synthetics or varnish-type vehicles. It can also be mixed with lacquers, but with some sacrifice of brilliancy.

Sands, Rubs, Polishes

A new high-speed light-weight 2-pad rubbing machine, driven pneumatically, is announced by the Sundstrand Machine Tool Co., Rockford, Ill. This machine is what the company calls the "opposed pad" type, which means that the two pads reciprocate (move to and fro like hand sanding) in opposed directions to assure smoothly balanced operation. Workmen know that freedom from vibration, in a machine of this type, is particularly important when finishing vertical and rounded surfaces, and in sanding and rubbing very small parts.



Serrations in the easily gripped housing, and a new automatic feather-touch valve reduce fatigue and facilitate handling.

This streamlined machine is small, light and vibrationless, therefore it is easy to operate with one hand. It weighs only 6-lbs. Its speed is suited to the type of work for which it is used—for such operations as sanding (smoothing surfaces with abrasive paper or cloth), rubbing and polishing in the cabinet room, paint shop and finishing department. In addition to its usefulness on flat areas, the machine can also be used over slightly curved surfaces, as well as on many small places usually reserved for hand work. Its performance assures speed, efficiency, safety and economy.

Clear Lacquer Resists Perspiration

A new type of clear lacquer that is especially suitable for finishing articles frequently handled, such as flashlamps, pencils, compacts, lipsticks, etc., is announced by Maas & Waldstein Co., makers of industrial finishes, Newark, N. J.

This new lacquer has been specially developed to resist the corrosive action of perspiration, and furnishes excellent protection for both finished metal surfaces and undercoats of lacquer enamel. It is light in color and has good outside weather resistance, adhesion, and color retention. It is furnished in either high gloss or flat finish.

Propeller-Style Fans

As a result of experimental work covering more than two years, the line of Hartzell Charavay industrial fans, made by the Hartzell Propeller Fan Co., of Piqua, Ohio, has been

ACCELERATED EXPOSURE TESTS

PRODUCING ACTUAL WEATHERING ON OUTDOOR
PAINTS, VARNISHES, LACQUERS, ENAMELS
Standard Weather-Ometer Test

What effects have light, heat, moisture, or cold upon your outdoor finishing materials? How much weathering can they stand before noticeable deterioration?

Our Accelerated Exposure Tests determine quickly and scientifically the effects of outdoor exposure on outdoor paints, varnishes, lacquers, enamels, coated fabrics, and other materials used out-of-doors. These tests produce the identical effect of outdoor weathering, inducing the same degree of deterioration. They operate continuously on 24-hour cycles...thirty 24-hour cycles equaling one year of actual outdoor exposure for most products.

PRICE OF TESTS: 1 sample...10c per panel per hour. Each additional sample...1¼c per panel per hour.

We invite inquiries from manufacturers and users of outdoor finishing materials interested in safeguarding consumer satisfaction for their products!

UNITED STATES TESTING COMPANY, INC.
ESTABLISHED 1880
HOBOKEN, NEW JERSEY
NEW YORK PHILADELPHIA GREENSBORO WOONSOCKET CHICAGO

extended and many new features installed. Basic designs in the line include the Tear-Drop, Standard and Birdwing propellers, each meeting a definite industrial or commercial need.

Hartzell Charavay fans are now available in single-propeller, two propeller and multiblade types. New mounting styles include an improved extension shaft, a new belt-drive blower, belt-drive exhaust fan and a slow speed fan.

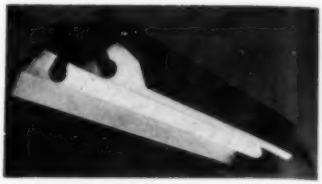
Development of the Tear-Drop propeller has permitted widely increased application of the company's adjustable pitch fan. The new propeller is said to provide economy in power consumption, even when both speed and blade pitch are changed to give exactly the amount of air desired. It is possible with the new fan to meet present needs and at the same time to provide for future increases or decreases in air needs. In addition to this flexibility, the fan operates efficiently against heavy pressures.

"Evenray" Fluorescent Lighting

Flickering effects are eliminated from the new Evenray fluorescent lighting units recently announced by Infra-Red Ray Devices, Inc., 9325 E. Forest Ave., Detroit, Mich. The result is "pure daylight fluorescent lighting."

According to the company: "All Evenray units are equipped with a three eyebolt arrangement which allows units to be hung in three different planes. Starters are easily accessible for replacement without the usual necessity of removing cover or tubes. Convenient and rapid servicing is possible while the unit is suspended. Covers are fastened by wing nuts and attached by two chains, allowing the cover to be hung at side of unit while servicing. No controls are disturbed when cover is removed."

These units are finished throughout with "Duranite." Both exteriors and interiors are finished in one coat of primer with the inside surface of each reflector finished in snow-white enamel, and the outside finished with black wrinkle enamel. All surfaces are baked by the modern infra-red process, resulting in a tough and durable surface, plus a perfect bond to the metal.



Flickering effects are eliminated.

Stripper Tanks

In addition to a line of stripper solutions for stripping grease, dirt, paint and enamel off metal parts and products, the D. C. Cooper Co., 20 E. 18th St., Chicago, Ill., announces that it is now in position to supply specially-constructed gas-heated solution tanks. The stripper solution is placed in these tanks and heated. Parts to be stripped of their coatings are dipped into the tank of hot solution and removed. Length of immersion depends upon the type of coating being stripped. Only 3 to 6-oz. of compound are needed for each gallon of water. Immersion of parts in the hot stripping solution removes all dirt, oil, grease, paint, etc., from the metal surfaces, leaving same clean and in perfect condition for painting, plating and galvanizing.

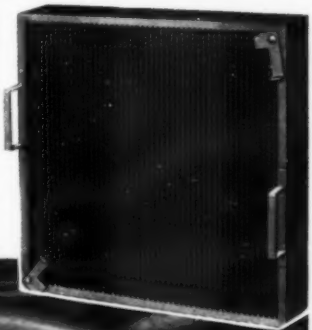
New Disc Sanders

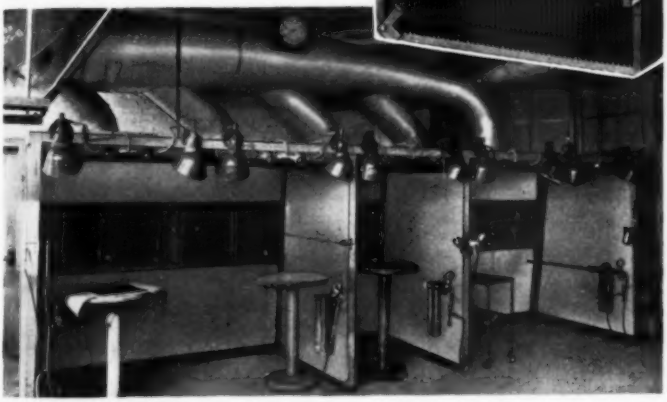
Three new additions to the line of Skilsaw disc sanders are announced by Skilsaw, Inc., Chicago, Ill.

Model "SP" is a 2-speed heavy-duty sander and polisher—specially developed for steady use in metal fabricating plants where there is need

AAF SPRAY BOOTH FILTERS

American Sinuous Filters offer worthwhile initial savings in addition to maintenance savings when used in spray booths to replace standard ventilating units equipped with special louvres. They eliminate serious maintenance problems by removing spray vapor before it reaches fan and ducts. Prevent reduced fan efficiency due to accumulation on blades and reduce fire hazard. Write for Bulletin No. 224 giving complete installation data.





AAF FILTERS FOR FINISH DRYING

The use of proper ventilation in the drying room, bringing filtered warm air into contact with the finished surfaces and exhausting the fume laden air accelerates drying and in turn reduces cost of this operation. The Multi-Panel Automatic Filter is recommended for larger drying room ventilation while in small drying rooms, Airmat Dry Filters are more practical. Write for Bulletins No. 230B and No. 240C.

Multi-Panel Automatic Filter

Airmat Dry Filter

AMERICAN AIR FILTER CO.
Incorporated
708 CENTRAL AVENUE, LOUISVILLE, KY.

AIR FILTRATION AAF DUST CONTROL

for a variety of sanding, polishing and buffing operations. When operating at a speed of 4200-rpm. with a 7-in. disc, it provides a maximum of sanding efficiency. When changed to 1300-rpm., the tool is ideal for use with felt rubbing pads or lamb's wool polishing bonnets for rubbing down lacquered surfaces and other polishing operations.

A simple gear shift makes it very easy to change from one speed to the other. Eight heavy duty ball-bearings, mounted on all shafts, make possible carrying maximum loads and insure quiet operation and long life. Model "SP" is 18½-in. long and weighs 14¾-lbs.

Models "H2" and "SL" are slightly larger, slightly different and cost a little more.

M & W Stove Enamels

A line of enamels especially adapted for use on stoves is announced by the Maas & Waldstein Co., makers of industrial finishes, Newark, N. J.

M & W Codur Stove Enamels are supplied in white, porcelain white, and colors. A single coat of this type of enamel, baked from 5 to 45 minutes, depending upon the temperature and type of oven, produces a fine glossy finish that is resistant to marring, hot grease, and kerosene, and will withstand heating to 420°F. for 8 hours without noticeable discoloration.

For more severe service, a special high-heat gloss enamel is supplied, which will withstand 425°F. for 12 hours without objectionable discoloration.

An attractive and durable finish for heaters and other types of stoves consists of a coat of M & W Duart Wrinkle Enamel followed by a coat of Metalustre of any desired color. This type of finish will withstand 420°F. for 150 hours without darkening. A single coat of pigmented Duart Wrinkle Enamel is also used by some stove manufacturers.

Synthetone; Speed-Dry Furniture Finish

For rapid streamlined furniture finishing, the Southern Varnish Corp., Roanoke, Va., offers a newly developed final-coating material called "Synthetone." According to the company this new finish offers quality, eye appeal and economy. One coat of the material gives the building qualities, body, gloss and coverage of varnish, making it, the company declares, more economical than lacquer. It produces beautiful depth, smoothness and luster.

"Synthetone" cures in 90 minutes at 150°F., after which it may be rubbed and polished. This beautiful permanent finish is highly resistant to cold-checking, printing, marring, hot water and liquor. Furniture finished with this material is entitled to bear the silver and blue label that identifies Synthetone.

This new finish is a wholly synthetic product, made from domestic raw materials which come from coal, natural gas, vegetable oils, air, and water.

"Blowing" Air Gun

A streamlined Air-O-Chek air valve, or air gun, with hardened steel nozzle for blowing-service, where the air gun is subjected to severe usage, is announced by the Air-Way Pump & Equipment Co., 569 W. Van Buren St., Chicago, Ill.

This steel-clad air gun employes the patented Air-O-Chek valve design, which requires no packing gland and no external levers or buttons.

An actuating lever, connected to the valve by a ball-and-socket joint, extends into the hose. Flexing the hose slightly between thumb and fingers deflects the lever and opens the valve. When the hose is released, the valve closes automatically and instantly with a leakproof seal.

The simple valve mechanism is made of bar brass and stainless steel. It is shielded by the hardened steel nozzle and the hose.

Cut Sealer Costs WITH DU-PROS SHELLAC

Du-Pros Strictly Pure Shellac is low in price, high in solids and reduces with alcohol. It not only costs less than most sealers, but reduces farther with a lower priced thinner. These features make Du-Pros the most economical sealer you can use under lacquer or varnish.

Du-Pros is not only economical. It produces a high grade finish. While shellac in general has been recognized as an indispensable material for generations, Du-Pros produces the finest results ever achieved. This is the result of using the finest ingredients, and extra processing by the original Day method.

Every gallon of Du-Pros Strictly Pure Shellac is freshly made when shipped, insuring good color, easy sanding and quick drying. You will find that Du-Pros spreads out smoother.

In a low cost sealer like shellac it is important to use only the best. Day's Du-Pros Strictly Pure Shellac will give you finest results with the greatest economy. Order a trial barrel today.

DAY FYNISH

JAMES B. DAY & CO.
• CHICAGO

Reclaiming Waste Spray

Have you any information on the reclaiming of pigment from water-wash spray booths? The particular concern desiring this information is now using a synthetic baking enamel.—A. A. Co.

Most of the users of finishing materials have found that the reclaiming of waste residue is unprofitable. The few who do consider this reclaiming profitable are not inclined to give out much specific information about it. It would seem to us that the concerns best equipped to rework spray residue into usable material would be the manufacturers of the original finishing material. The restoration of washed waste residue into a satisfactory finishing material usually requires something more than the mere mixing of the residue with thinner and the straining of same. —ED.

Spray Booth Floor Covering

We have a problem on which you might offer us some help. This problem consists of the matter of removing lacquer residue from the floors of our spray booths.

We have in use nine large booths in which the floor area measures about 10x12-ft., and in the center of this area is placed the article to be sprayed. Our work is large compared with the average manufacturer of bedroom and dining room furniture. Quite a bit of the residue falls to the floor, and this must be scraped off with copper scrapers every Friday afternoon.

We are looking for something inexpensive that we can apply to the spray booth floors after they have been scraped, so that residue from overspray, while it hits the floor, does not adhere but, instead, forms a sheet of material which can be scraped off with very little effort.

We have tried cup grease but find that lacquer penetrates the grease. Next, the grease is very slippery and is a dangerous hazard from that angle. We have tried furniture wax, and this seems to do the work very nicely, but it is too expensive, as we would require about a 5-gallon can for each booth every week. We have tried to dissolve it but that doesn't work.

Do you suppose that any of your subscribers might have some ideas along this line?—A. D. Co. (Store Equipment).

We are wondering if you have ever tried or given any consideration to "Kelsanite"? This is a sort of paste material which, after being brushed on, becomes like a thin film of rubber and later can be stripped off in sheets. The manufacturer's name is being sent to you by letter. We are also giving you the names and addresses

Questions; Answers

Questions are welcome and will be answered promptly by mail. Readers are invited to prepare and send in additional information relating to any of these questions and answers.

No. 22 RED CRANK CASE Sealer

Find out about this!

Here is a material that has normal lacquer drying and machines well without chipping. Will withstand hot oil at 275° for 400 hours. It is non-toxic, alcohol resistant, and will stand a regular alkaline bath. Will cover 900 square feet per gallon by cryptometer reading.

Write for Prices and Samples

TOUSEY VARNISH COMPANY

520 WEST 25th STREET CHICAGO, ILLINOIS

Varnishes—Enamels—Lacquers—Synthetics : Since 1885

of other manufacturers of spray booth coatings, some of which might be satisfactory for your requirements.

One of our foreman finisher friends tells us that in an emergency he has used paraffin wax with good results. He suggests using it with a mixture of kerosene and gasoline, the liquid to serve as a vehicle and drying retarder to make possible the convenient spreading of wax over the floor while warm. He suggests using paraffin wax in the proportion of about one pound of wax to one gallon of the kerosene and gasoline mixed 50/50.

To heat the kerosene-gasoline mixture safely to the low melting point of paraffin wax, and at the same time keep it clear of any flame, he suggests placing the liquid in a thin metal container and lowering this into a larger container of very hot water, previously heated at a point safely away from the kerosene and gasoline mixture. Then cut thin shavings of paraffin wax and let them drop into your heated kerosene-gasoline mixture, stirring same at the time. Stir up this warm mixture and spread it over the spray booth floor several hours before work is to begin in the booth, so it will have time to harden and so the gasoline will be evaporated before spraying begins.—ED.

To Marbleize Fireplaces

We would like to learn about materials, equipment and methods to use for marbleizing the front panels, flat and curved columns and bases of portable fireplaces

PRODUCTION

CHROMATE

PRIMER

For streamline speed

- Air dries in 20 min.—Can be force-dried or baked.
- Forms perfect bond for lacquers or synthetics—no lifting.
- Excellent adhesion to all metals and die cast parts.
- Resists moisture penetration and salt spray tests.
- Supplied in different colors to suit your needs.

Will Finish Your Product or Supply Sample for Your Tests.

H. V. **WALKER** CO.

MODERN PRODUCTION FINISHES

Elizabeth, New Jersey

made of fir and gum plywood. We manufacture these portable fireplaces.—V. T. Co.

We suggest that you investigate the possibility of using lacquer transfer films on which the marble grain is already printed, and which you can apply to flat or curved surfaces. Names of companies to contact are being sent to you by letter.

You might also consider the use of regular decalcomania transfers.

The marble grain can be reproduced on flat surfaces by the silk-screen stencil process or by graining from a copper plate, or from a graining roller. Marble graining can also be imitated by skillful spraying and by artistic brush work, but this generally calls for the services of an experienced artist. We are placing you in contact with concerns who have the various types of equipment and materials for doing this kind of work.—ED.

Bleached Walnut Has Black Spots

In bleaching walnut veneer panels, we find that little black spots appear all over the veneer. Can you tell us what this is from and how to eliminate it?—W. P. Inc.

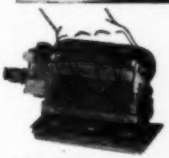
We have referred this matter to some of our expert foreman finishers in this locality, and a number of them say they have experienced this same trouble. They declare that it is because of the natural acid stain in the wood, this stain more or less neutraliz-

STILL sanding by HAND?

Do It Mechanically Three Times Faster!

The Sterling Speed-Bloc Sander:
Cuts sanding costs 50% to 75%
Reduces costs 50% to 75%
Does better, more uniform sanding
Sands curved or flat surfaces
Rubs and polishes
Works on wood, metal, any surface
Does wet or dry sanding
Easily operated by any employee

Ask for Free Demonstration



Sterling SPEED-BLOC SANDER

STERLING PRODUCTS CO.
3380 Robertson Blvd., Los Angeles
2463 Woodward Ave., Detroit

ing the action of your bleaching compound. About the only suggestions we have to offer, at present, are:

1) That you try different bleaching compounds, or at least use a different and perhaps stronger bleaching compound for treating the spots you complain about.

2) Either change the source from which you are obtaining walnut veneer or veneered panels, or try purchasing walnut veneer or panels that are rated as a little higher grade or a little more expensive. These give less trouble.

You haven't told us how thick the veneer is on these panels. There is a bare possibility that these little black spots are caused by glue stains. The remedy for this would be to use thicker veneer.

We presume you know of several manufacturers of bleaching compounds; however, if you care to try different sources of supply for bleaching compound, we are suggesting several in a letter.

Note: We invite further comment on this by men of experience.—ED.

Testing Company Tests Paint Performance

With the installation of a new Weather-Ometer, the United States Testing Co. can now make complete weathering and ageing tests on paints, lacquers, leathers, and coated fabrics, at its main Hoboken, N. J., laboratories.

The contraction and expansion caused by light, heat and varying degrees of moisture, along with other deterioration encountered in actual outdoor weathering, are duplicated on the new equipment.

The Testing Co. says that thirty 24-hour cycles on the Weather-Ometer are equivalent to a year of outdoor exposure for many products.

« Tumble Finishing »

BY R. T. WILLIAMS
Globe Machine & Stamping Co.

HIGH PRODUCTION creates a demand for new methods to reduce time and to eliminate bottlenecks in industry. In establishments that manufacture small metal products, hand grinding, hand finishing and hand polishing operations often create serious bottlenecks. On account of the necessity for expensive polishing equipment to perform these operations, it is often customary to get along with only what machinery is absolutely essential for keeping up with the demand.

Barrel finishing or tumbling is not in this class. Thousands of parts are now finished in a tumbling barrel in less time than a few hundred pieces can be finished by hand in the same period of time. This saving in time makes these men and machines available for other jobs that require some special type of hand polishing which can not be performed by tumbling.

Typical cases are in the metal-stamping industry. Parts blanked

EDITOR'S NOTE — The tumbling of small parts or products in one of the many different types of tumbling barrels is an operation that is performed to accomplish one or more of the following results:

1) Cleaning parts preparatory to plating them or coating them with some organic finishing material.

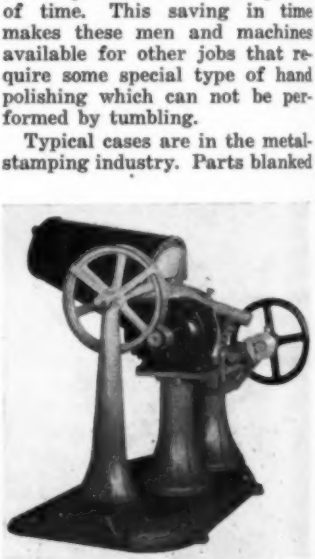
2) Removal of rough burrs, wire edges, etc.; in other words, the smoothing and rounding of sharp or ragged edges and corners.

3) Burnishing, brightening or polishing bare metal parts, or articles made of plastic, fiber or wood.

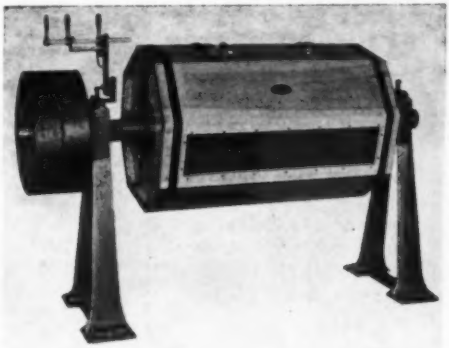
4) Coating small wood or metal parts with finishing material.

5) Cleaning, polishing, buffing or wax-finishing coated articles.

The tumbling barrels used are of various shapes and sizes, depending upon the type of work they are to perform. Some are made of hardwood; a few wood barrels are metal lined; many barrels are of all-metal construction. Closed barrels include those of cylindrical shape, as well as many that are hexagon or octagon in cross-section. These barrels are usually mounted on a horizontal axis, with the axis centered at the ends and extending parallel with the sides. Tilted tumbling barrels, which operate in tilted position with the open end up, are usually round in cross section but generally larger in diameter at the bottom than at the top.



A new tilting tumbling barrel with work-shifting bottom and direct motor drive.



Octagon-shaped tumbling barrel made of maple. Notice the loading door at top and wire mesh panel in front. Another wire mesh panel is located on the opposite side of the barrel. This barrel was developed especially for tumbling small articles made of hardened plastic compound to remove any burrs or wire edges from the outside corners, and to give the edges and corners a general smoothing treatment safely and economically.

and formed in punch presses usually are sharp at the edges and covered with grease. A tumbling operation, consisting of a run of from one to two hours in a suitable type of tumbling barrel, will not only remove this unwanted grease but it will leave the stampings free from wire-edge burrs—and it will make them bright, as well. The grease-covered parts are smoothed and cleaned in one operation by placing sawdust in the barrel. The sawdust takes up the grease and brightens the parts, while the tumbling operation removes the burrs and sharp edges from the metal parts.

Before plating, many small parts can be placed in a burnishing barrel and run for a short period of time, the length of time depending on the composition of the parts. The pressure and friction produced during this operation gives a better surface for plating. As a result, the plating is more durable and presents a superior finish.

Tilting tumbling barrels, open at the top, provide the average factory with equipment that is low in cost and which has many uses. These barrels are easily loaded and unloaded, and the work can be inspected during the tumbling operation. With closed horizontal barrels it is frequently necessary to stop the machine, remove the cover, and inspect the work in process. With tilting barrels this inspection can take place while the machine is in motion.

To speed up the tumbling operation, one tumbling barrel concern has incorporated into its design a triple-action work-shifting bottom. This is an exclusive and patented feature. When the machine is in operation this work-shifting bottom forces the load to shift alternately forward and backward as well as being tumbled around in the revolving barrel. This causes a more thorough agitation, with uniformity in the finish of the parts, in less time than is possible with the ordinary flat-bottom barrel.

Coatings Applied by Tumbling

The barrel finishing or tumbling of parts and products in

SPECIAL FINISHES

OUR laboratory and plant are steadily and successfully producing SPECIAL FINISHES for nationally known manufacturers. We may have the UNUSUAL ITEM that you need.

Dopes—Thinners
Lacquers—Synthetics

RANDOLPH
FINISHING PRODUCTS CO.
Carlstadt New Jersey

Write for

COMPLETE INFORMATION AND PRICES ON THE

11 Sizes of GKS Standard Cabinet Ovens

GEORGE KOCH SONS, Inc.
Evansville, Indiana

japan and paint is another interesting and profitable operation. The parts are placed in a barrel, together with a measured quantity of paint. The barrel is revolved for a period of time sufficient to allow the paint to form a thin film over the parts being tumbled. The finished parts are then emptied onto a screen and allowed to air-dry, or they may be placed in an oven and baked.

Before any of the modern methods of barrel finishing can be put into practice and adopted, it is necessary to secure the type of barrel in which their possibilities can be demonstrated to best advantage. A certain amount of experimental work is generally necessary to determine the specific facts relating to any tumble finishing job—that is, unless someone in the factory organization is thoroughly familiar with various types of tumble finishing from long experience. These facts will include the type and size of barrel to use; the speed at which it should rotate; the type, quantity and viscosity of finishing materials needed for each load, the length of time for tumbling, how full to load the barrel, etc.

A manufacturer recently asked if stainless steel could be burnished. After an operating cycle of less than two hours in a high and narrow burnishing barrel, the parts were shown to the customer; they had a luster that could not be achieved by hand polishing. The customer found that a less expensive grade of stainless steel could be substituted and, after burnishing, it had a better appearance than the factory finish of a higher grade of stainless steel.

Plastics are now being tumbled

37% SOLIDS *at the gun*

FIVE GALLONS AT DRUM PRICE

NOROY **LACQUER W-1055**

[THE ONLY CLEAR ALCOHOL PROOF GLOSS WOOD LACQUER WITH 37% SOLIDS SPRAYED COLD.]

● A specially developed one coat furniture finish sprayed cold. Produces a high build, beautiful alcohol proof finish. Saves Time, Labor and Money. Attractively priced.

● Cold Check durability test No. 12958 of W-1055 Lacquer by U. S. Testing Co., Inc., Hoboken, N. J., showed no checking after 15 cycles.

NOROY S-1230 SEALER

Dozens of leading furniture manufacturers using NOROY S-1230 Sealers say . . . .

- Fills exceptionally well.
- Forms perfect bond.
- Does not shrink.
- Dries quickly.
- Sands easily.
- Costs less.

Make your own "Convince Yourself Test." Order five gallons at drum price today.

RUDD LACQUER CORPORATION

127 MAIDEN LANE **NEW YORK**

Factory—Rahway, N. J.

SEA-LAC

perfected LACQUERS • ENAMELS • SYNTHETICS

BRASS LACQUER — with maximum brightness, optimum toughness, and freedom from spotting troubles.

GOLD DYE BRASS DIP — with spot free film, mellow golden tone.

BUFFING LACQUER — with mirror gloss that won't melt under the buffing wheel.

For Information and Samples Write

DURALAC CHEMICAL CORPORATION
NEWARK, N. J.

and finished in tumbling barrels. The objectionable flash is removed by tumbling the articles in a wood barrel equipped with screen sections to permit the burrs to pass from the barrel. At times it is necessary to polish the plastic parts. This is accomplished by tumbling them in a wood barrel, using as a media, sawdust and a lubricant. If sufficient weight is not available for pressure, maple wood blocks can be added to supply the needed bulk.

Clean That Filter and Avoid Trouble

THE COMPRESSED air filter at each spray booth is an important piece of equipment. The thing that amazes me is the little attention that is given toward keeping it in good working order. A filter usually has a drain valve at its lowest point with which to blow off collected water, oil and dirt. I recommend that this valve be opened and the collected foreign substances be blown out at least once a day.

If the filter is not cleaned at regular intervals, the collected oil or water can carry over and splatter all over a paint job—and you know the result. The paint job usually has to be stripped off. Strange, isn't it, this always happens to the job that is most important?

Filters are often packed with a steelwool filter pad. This type of filter is very effective, but you must realize that steelwool will corrode, and if this steelwool is not changed at regular intervals the corroded steelwool will break

up and carry over and spoil the paint job. No matter what type of filter pad is used, the pad must be changed at regular intervals because, eventually, it becomes contaminated with residue filtered out of the air line.

When a spray gun starts acting up, the natural impulse of the finisher is to remove the head of the spray gun and examine it. If there is any sign of grit, this should be taken as a warning to clean the air filter and change the filter pad.—G. H.

Clean Ovens

OVENS ARE sometimes a problem to keep clean, but they must be kept clean nevertheless. Often ovens are painted inside, but a paint coating eventually becomes brittle and flakes off, which makes more dirt.

An easy and efficient way to care for oven interiors, after they have been cleaned, is to take raw linseed oil, dip a cloth into it and wipe all over the inside surfaces. This will hold down all lint and dust and, when it hardens, it doesn't leave a brittle film to crack and flake off. It gives the metal a much more finished appearance and seems to preserve it. —HOWARD DEAN.

Stop Flying Dust

WE HAVE found that occasionally it pays to oil concrete floors, to hold down the dirt. A 50/50 mixture of light lubricating oil and kerosene, brushed on, holds down the dirt and dust. Then when the floor is swept, there will be no light dry dust and dirt to fly into the air and be

May We Prescribe?
ETHYL-CELLULOSE LACQUERS
This new type lacquer has many advantages over nitro-cellulose lacquers.
1—Lower inflammability
2—50% thicker coating
3—Non-lifting
4—Does not discolor with age
5—Retains flexibility at low temperatures
6—Low priced thinners
Recommended for all types of furniture finishing. An ethyl-cellulose lacquer leaves a film 50% thicker than that of nitro-cellulose lacquer of equal solid content. We have a number suitable for every finishing purpose. Write for details and FREE BULLETIN explaining how to get a better finish with real labor saving and at no increase in cost.
YOU CAN COUNT ON CAMPBELL
M·C CAMPBELL Company
"Fine Finish Leadership for 25 Years"
706 EAST 19TH ST. KANSAS CITY, MO.

Faster
Better
Finishing
Greater Economy
With Low Pressure
Spray Equipment
ECLIPSE AIR BRUSH CO.
392 PARK AVE. NEWARK, N. J.

drawn through the spray booths (by exhaust fans) and across any work being sprayed.

A little oil around window edges and on cupboard tops helps, to a great extent, to prevent loose dust and dirt from flying through the air and open spray booths.

Tack rags, after they begin to dry out, are a source of much dirt when used on a flat surface. The loose dirt in the rag comes out and lays on the surface, often unnoticed. When the rag is no longer tacky it is a detriment to the shop and should be removed or destroyed.—HOWARD DEAN.

Bakelite Offices Moved

A notice of change of address states that effective July 1, 1940, the offices of the Bakelite Corp. and Halowax Corp. have been moved from 247 Park Ave., New York, to the Carbide and Carbon Bldg., 30 E. 42nd St., New York, N. Y.

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Also Foreign Patents
WOOD DECOLORIZER
FOR
MODERNIZING
L. R. van ALLEN COMPANY
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Design and Finish Improved

A TYPICAL example showing the results of improved design and finish appears in the accompanying illustration of the old and the new. This small instrument is not a cigarette lighter but a Duraton hearing aid manufactured by the C. L. Hoffman

Old design is at top; new one is below.

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Write for specific details to — 70 Pine Street, New York City

Corp., Pittsburgh, Penna. Here we have purposeful industrial design with the all important sales-factor of appearance values in mind; also something suitable for practical production.

The unit was styled by Design Director Onnie Mankki, of Designers for Industry, Inc., Cleveland, Ohio. The designer has made a successful although radical reduction in size of the instrument, along with good functional design appearance. A modern grille protects the microphone screen. The unit is a zinc die casting with zinc die cast knobs. The metal band is polished aluminum channel. Case and knobs are finished in opalescent gray brown.

Letters from I. F. Readers

(Continued from page 9)

fessional standpoint, but I was thinking that probably, from the figures given in this test, we could work out some information that would be very valuable to us. With this information in mind probably you would be able to tell us which scale would be most valuable to us.

We are interested in the distillation tests and would like to know where we can obtain the proper information for the exact procedure as described by the ASTM Method D86-30. We would also like to know how we can tell when benzol and toluol are present in thinners.

At the present time we are using a thinner manufactured by the —— Co., and we wish to compare this with some of their competitor's thinner.—H. R. Co.

We are submitting your letter to Mr. J. W. McHugh, author of the article that interests you. He is in position to give you exact authoritative information.—Ed.

Makes Flocked Screens Too

We notice that in the June, 1940, issue of this magazine, in the Letters from Readers columns, on page 7, one of your contributors asks for a supplier of flocked screens. We would like to call your attention to our

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company, as a manufacturer handling this type of work. We would be very glad to receive the full name and address of the M. Radio Cabinet Co., who requested this information. —Ripley Mfg. Co. (Wire Cloth; Perforated Metal Parts).

Brass Lacquer

We would like to have a formula for lacquer and thinner for the dipping of brass-plated novelties — a clear brass lacquer with good adhesive qualities and no oxidation. Please do not include royalty lacquer. —U. G.

We do not supply formulas for making lacquers and lacquer thinners. We suggest that you purchase a lacquer suitable for this purpose, and we are pleased to recommend the products of several concerns who advertise in this magazine.—ED.

Salt Spray Test

Could you please tell us who we could get to run a salt spray test on clear metal lacquers?—S. L. Mfg. Co.

We suggest you try United States Testing Co., whose ad. appears in this issue.—ED.

Temperature Regulator Catalog

Sixteen pages of interesting illustrations are contained in Catalog No. 52, just sent out by the Sarco Co. Inc., 183 Madison Ave., New York, N. Y. Specifications and data relate to various types of equipment and accessories for regulating temperatures. The company's lines include self-operated temperature regulators for controlling the flow of steam, gas, water, or brine.

Goodrich Catalog Offered

Containing a vast amount of information in condensed form, easily understood by purchasing agents and plant maintenance men, The B. F. Goodrich Co. has just published a new 24-page catalog on its mechanical goods. The volume is a threefold one, a condensed catalog, engineering data, and guide to selection of various products. It is available upon request to the company's principal branch offices or to the main office in Akron, Ohio.

Paint Companies Merge

Under a plan recently approved by the stockholders of the American Asphalt Paint Co. of Chicago, Ill., and its subsidiary, The Marietta Paint and Color Co. of Marietta, Ohio, the two companies have been consolidated and are now operating as one corporation known as the American-Marietta Co.

Mr. Grover M. Hermann, President of the new company, made the announcement last month at the General Offices of the American-Marietta Co., 43 E. Ohio St., Chicago, Ill. Mr. Hermann founded the American Asphalt Paint Co. 27 years ago and under his direction the company has become one of the leading manufacturers of heavy-duty industrial maintenance paints under the trade name "Valdura."

The Marietta Paint and Color Co. was founded in 1897; and its President, Mr. George A. LaVallee, continues as a director of the American-Marietta Co.

The plants operated by the company are located at Kankakee, Ill.; Marietta, Ohio; High Point, N. C., and Lincoln, N. J.

Combined sales of the two companies for the seven months period ending June 30th show a gain of 19.1% over the same period last year. This increase has made it necessary to double the capacity of the Kankakee plant during the past year, and further expansion of the company's production facilities at Marietta, Ohio, is now under way.

Du Pont's Lucite Guides Motorists Driving at Night

Every curve, turn, bend, and crossing on Maryland's leading highways now is mapped out far in advance for night driving motorists by powerful retro-directive reflection. In a statewide installation just completed, 1970 symbols, made of a new material that reflects light from as far as a mile away, have been erected along the highways.

The symbols, mounted on 24-in. square plates, are formed with units of "Lucite" methyl methacrylate, the new plastic with strange optical properties which already have been utilized for "light piping" in surgical instruments and in other devices that "bend" light around corners.

The installation involves 24,000 units of "Lucite," each the diameter of a silver dollar. The material, developed in the Du Pont chemical laboratories, can be molded with angular sharpness approaching that of a cut jewel.

When it is molded with its back a grid of pyramidal elements, it has the power to collect and concentrate the rays of headlights into strong beams which can be seen a mile away and which give clear definition of the symbols beyond 1000-ft. This ability to see the designs at a distance is especially valuable in letting the night motorist know whether there is room enough ahead to pass another moving car.

The plastic is as transparent as the finest glass, but weighs only half as much and is non-shattering. Its reflective power, when properly molded, is ten times that of glass.

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222 East Ohio St., Indianapolis, Ind.
Telephone .....Riley 6771

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Subscription Rates per Year
U. S. and Possessions.....$2.00
Canada and Foreign Countries.....$3.00

EDITORIAL

Used "Perdue Pump" to Remove Dirt from Ovens

How another finishing foreman has used something he saw in INDUSTRIAL FINISHING to solve a typical shop problem, is related in the following communication from Mr. Howard Dean:

"We had occasion recently to use a pump made from the sketch shown in this magazine by Mr. W. K. Perdue (May, 1940, issue, pages 31 to 38). Our ovens are of the batch type with three tracks inside. Where the track does not fit snugly to the floor, naturally a certain amount of dirt accumulates under the edges. We decided to make one of the air-pressure force-pumps to draw the dirt from under the track and from places that are difficult to reach, and then blow this dirt into a bucket. We found this pump, described and illustrated by Mr. Perdue, did a good job and will easily pay for itself."

Suggestions and Comments Selected from Our Mail

Maintenance Painting: H. H. G. writes in to call our attention to the difference in results obtained with the use of a wide fan spray and a narrow spray when spray-painting interiors of buildings—and the same could apply in product finishing. He declares that the spray operator adjusts his gun narrow to spray around windows, doors and other areas where it is necessary, then often leaves that adjustment instead of spreading it out to a wide fan spray for the large areas. As a result, the cost of material and labor for the spray painting job is unnecessarily high. It's a thought to keep in mind.

Scratch-proof Bar Finish: Referring to the Question and Answer on this subject, as published in July issue, page 56, one of our friends suggests that the area to be subjected to match scratching be veneered with "Realwood" Formica — a thin wood veneer attached by resinous binder to a sheet of clear Formica—a burn-proof alcohol-proof sheet of clear plastic.

Another correspondent suggests that the area where matches are being scratched should be so heav-

ily waxed that matches will not ignite and then mar the finish. As a result, he claims that this failure to ignite the match on the finished surface will prompt the match scratcher to try the under edge of the bar which is hidden from view and which may have an abrasive surface ideally suited to striking matches.

Weather-proofing Textiles: G. F. P., declares he saw, in a 1937 copy of INDUSTRIAL FINISHING, a short news item about "a patented emulsion made from aluminum oleate and paraffin, and used for treating textiles to weather-proof them." He says he saved the copy for more than a year, intending to do some development work on the product, "but the wife cleaned house one day" [famous last words].

We have looked over back issues for this article, with what time and help we had available, but have failed to find it. Perhaps someone else will recognize the article. Again, we repeat with all the emphasis at our command: *Keep back copies of Industrial Finishing magazine,* and now we add: *Keep them in a safe place.*

What They're Talking About

One of our friends writes in to say he thinks it's a waste of valuable time to permit a finish salesman and finish foreman to spend their time discussing solid content, ingredients and other chemical technique about finishing material when, in most cases, neither of them really knows what he is talking about.

Quoting some of his letter:

"Very few salesmen of industrial finishes are paint chemists. If they were, or if the foremen finishers they interview were, both would have better and higher paid jobs.

"The salesman—if he is a real finish salesman—takes the material the factory gives him to sell, reads all they say about it; then gets by himself somewhere and tests it personally. He finds out just what it will and will not do. Then, and only then, is he ready to talk it and sell it!

"The first rule of logic is, *First Things Are First!* So, just what is the first thing for both salesmen and finishers? It's easily answered. The turning out of a perfect lasting job! It is immaterial to either salesman or finisher whether the product is made from apple or banana skins; or whether the gum is secured from pine pitch or the secretions of aphis on a rose bush. All they need be interested in is, will it do the job?

"The absolute inviolable idea behind both their efforts is to be able to furnish, use, and place on the surfaces to be finished a coating that will withstand all the requirements of general usage.

"It seems to me that all this talk in chemical terms is nothing more than bunk. Why not leave chemical terms to finish manufacturers' chemists? After all, they have spent years in study to secure their knowledge.

"Some of us may fool ourselves with the thought that we are impressing others with our knowledge; but more often we are impressing them with our lack of knowledge.

"I think that if many of us would forget technical terms and concentrate on how the job will look after it leaves the finishing room, we will all be better off!"

Well, that's that. Readers, you supply the comment.

Business at Furniture Show in Chicago, July 1-13

* Business in the home furnishings industry is good, and getting better. This is the important summary of business, gathered at the close of the Summer National Home Furnishings Show held at the American Furniture Mart July 1 to 13. Buyers indicated their optimism by attending the market ten thousand strong, actually 10,206 buyers registered at the huge market place to break the record for summer markets established in '37 when 10,079 buyers were recorded.

Apparently, at the present time, the home furnishings industry is not being affected by European affairs. Raw materials, with the exception of imported woods and a few other commodities, are supplied by the country's own resources. Woods available now indicate that there is a sufficient quantity to meet demands.

One of the few all-American industries—home furnishings being designed, built and sold within the North American continent—there was little talk of restricted imports, shortages of materials or war complications. On the other hand, dealers spoke of increased sales to industrial territories where business is booming with preparedness programs. Dealers from farm communities were supplying the needs of farmers equipped to buy home furnishings with money from liquidated crops, and suburban district buyers stocked up with merchandise to sell to new home builders.

Market prices were firm in all phases of the industry. Dealers bought their full requirements (although refused to stock up too far in advance) and manufacturers closed their order books at the conclusion of the market with sufficient orders to keep production lines humming for the next business quarter. Reports of business 10 to 20% ahead of a year before were not uncommon among manufacturers, and the outlook for increased road business among manufacturers was unanimous. Most orders were placed for immediate delivery and 30 to 60-day shipments were promised. Many novelty manufacturers told of Christmas orders

* Guest Editorial .... Many readers can write an excellent editorial — two or three paragraphs presenting a timely suggestion or valuable idea that will stimulate thought on a live subject. The Editor welcomes guest editorials and pays for those that are published.

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being placed. Merchandise to supply the demand anticipated by the style shows being planned in all parts of the country in September, showed a tendency toward style commodities. — ROSALIE FLANK.

For Clean Finishing, Strain Your Material

• Straining paints and other finishing materials is a necessity. The hurry-up fellow who never has time to strain material usually pays in the end by having a lot of work to refinish—or a dirty unattractive product.

If the material is strained through a suitable screen, and if a screen of the same mesh is used in the pressure tank and gun handle, you are assured of perfectly clean material. The strainers in the gun and tank eliminate any slugs that may come loose in the line or hose, and prevent same from coming through the gun to spoil the finish.

Paints and enamels, especially heavy pigment types, should be thoroughly mixed or agitated with their thinners before they are used for spraying. Failure to do this often leads to disastrous results, and means more reworking of rejects.—HOWARD DEAN.

Uphill from the Bottom

Here are a few excerpts out of a letter from one of our young men readers, struggling to get along in the finishing game in New York City.

"At the present time I am working for the —— company of New York, manufacturers of wrought iron work. This is temporary work. I am spraying piece work, and say; what a messy layout. Using an ancient type New Yorker spray gun with a bent tip; quart container for high-speed production; no filter transformer; air pressure from 45 to 120-lbs. for either synthetic enamel or lacquer; wipe the dirt off 'maybe'; air tank loaded with oil, and so on. The whole thing is a mess, with no system and an awful loss to the men and to the concern. However, I'm not crazy enough to try and convince a group of so-and-so's what is what.

"The job was obtained through the Board of Education, who called up the —— spray equipment people in New York.

"Quite some time ago I went down to the —— spray equipment company for their catalog because I wanted to become familiar with the different types of equipment, and at the same time

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I learned how to take apart and assemble their spray guns. I have, as yet, to see a foreman or sprayman assemble one correctly. I wrote them and thanked them, and also suggested that their salesman might try to sell the concern I'm working for, some new equipment.

"I've been down to the New York Library reading S. P. Wilson's Pyroxylin Enamels & Lacquers. I'm also trying to obtain a copy of H. L. Gardner's book on the Physical Examination of Paints, Lacquers, etc. — so you see I really intend to know something about the game some day. Here's hoping I can get into a real outfit."

Better Equipment and Methods Remove Bottleneck

★ Frequently the finishing department is the bottleneck in over-all plant production. This may be due to a lack of sufficient equipment or space. Often it is caused by improper methods.

Unfortunately the finishing department is usually the least understood and therefore the most neglected by the management. Requested improvements are likely to be difficult to obtain, and apt to be looked upon as an alibi to cover lack of satisfactory production, with the result that numerous plants, otherwise uptodate, are attempting to operate with antiquated finishing departments. A modern finishing department does not necessarily mean an elaborately equipped one, nor does it necessarily mean the expenditure of a large sum of money.

New short-bake finishes, infra-red baking, vapor cleaning, and improved spray equipment have done much to place uptodate finishing within the reach of even the smaller manufacturers.—H. R. MADSON.

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How Improper Metal Cleaning Ruined Enamel Job

★ Recently I witnessed a finishing smear and I sincerely hope no one else experiences the same trouble. A large cabinet manufacturing company had just completed a multi-colored cabinet order. They were about to ship the order when the metal cabinets took on a dingy, streaked look. The trouble was easily detected.

The cabinets looked as though they had never been cleaned. The foreman insisted that they had been thoroughly cleaned, first with a phosphoric-acid-base cleaner, then rinsed in clear hot water and finally sponged off with naphtha just before finishing. The naphtha cleaning proved to be the cause of the trouble.

Here is the diagnosis: The cabinets were rinsed, but the phosphoric-acid cleaner was not thoroughly washed off. This left a film of cleaning solution still clinging to the cleaned surfaces. To make sure that the cabinets would be cleaned thoroughly, the foreman had them washed off with naphtha. Naphtha did not remove the phosphoric-acid-base cleaner because naphtha is a dry solvent and will not remove a wet solvent. If the cabinets had been washed thoroughly with clean hot water, applied with a sponge, there would have been no trouble. There are a number of different substances that naphtha cannot be depended upon to remove.

A keen eye should have detected the trouble before the job was finished. By merely rubbing ones hand over the unclean metal, the film would have been detected. The foreman admitted that the first coat of enamel did not cover well, but he added a second coat which covered completely. The action of the cleaning fluid was arrested and did not work through the second coat of enamel until the cabinets were through the oven and in the process of being packed for shipment.

The complete job, naturally, had to be stripped off so the cabinets could be refinished.—H. G.

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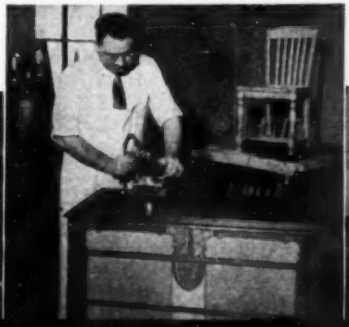
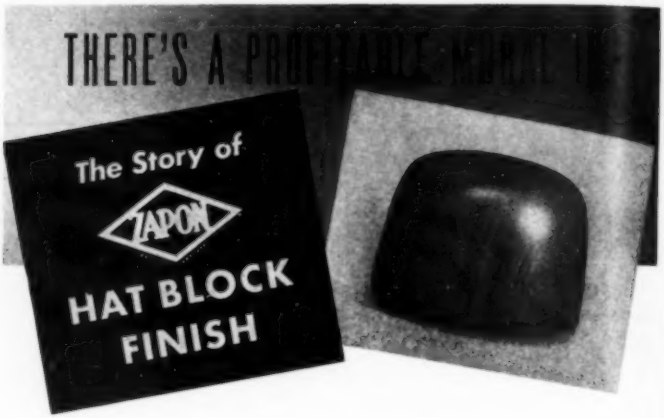


Below — EASY saves this shop 8 hours on every bus refinished.



Though few in number, Hat Block makers posed a mighty problem for the laboratory in searching for a finish to fit their unusual needs. The solution, through Zapon's Hat Block finish, may interest many in fields far removed from hat block manufacture.

Application—The blocks are first immersed in Zapon's 5780 clear, penetrating sealer until bubbling ceases, at most 15 minutes. Removed for overnight drying, they are then scuffed with sand. Next, Zapon's XL-833 G finish is applied. Drying time is normal for wood lacquer but before being put into service the finish, too, should dry overnight.

Qualities—Zapon Hat Block finish is essentially non-thermoplastic so that heat used in blocking will not cause the surface to stick or print. The coating is extremely water and humidity resistant. Normal impact does not puncture or mar the surface which is almost slippery, permitting cloth to glide over it readily.

What we've done for hat blocks, we think we can do for you in any other finishing matter. Perhaps this very finish, in some form, may solve a knotty problem of yours. Why not discuss it with us?

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